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WEEK AT A GLANCE

WHAT FUTURE FOR PASSENGER TRAFFIC? Last month, at Cleveland, the state regulatory commissioners, in their annual meeting, heard two of their own members express serious concern over the future of railroad passenger traffic. And developments in this week's news indicate good ground for such concern. In the Middle West, the Monon, despite every possible effort to put them on a paying basis, has been forced to discontinue its night trains between Chicago and Louisville. In the South, the Central of Georgia has extended its low round-trip fares in an effort to hold and win back traffic. And in New England the New Haven has proposed a 4-point plan, calling for the aid of public authorities, railroad employees and the public itself, in a last-ditch effort to preserve passenger service on the former Old Colony.

MECHANIZATION CUTS TUNNEL-LINING COSTS: Beginning on page 52 is an account of how modern concrete-mixing and -placing equipment is being effectively used by the Union Pacific to speed the work and reduce the cost of lining its new \$8,000,000 Aspen tunnel in western Wyoming.

INDUSTRIAL DIESELS: Railroads are by no means the only users of locomotives; thousands of them are in use for switching service in hundreds of industrial plants in all parts of the country. Like the railroads, these industrial users of locomotives have been turning rapidly to Diesels, particularly to the smaller types ranging in size from 20 to 80 tons on drivers. In an article beginning on page 68, Thomas J. Woods, of the Westinghouse Electric Corporation, outlines how the several available types of Diesel-electric locomotives can be most effectively used to meet industrial switching needs.

STEAM & DIESEL, INC.: As nearly everyone must by now be well aware, the Diesel-electric locomotive is taking over more and more of the jobs formerly handled by steam power. But under certain conditions, at least, the answer to railroad motive power problems may be found in a working partnership of steam and Diesel, rather than in complete supremacy of either one over the other. Such a partnership, as worked out by the Louisville & Nashville on its most important coal-carrying divisions, is described in the illustrated feature article which begins on page 58. The same article also points up the cost economies and operating benefits which accrue from use of new steam locomotives, burning selected fuel, as compared with older power of the same general type.

ELEMENTS OF HIDDEN STRENGTH: Despite record wartime earnings and constantly improving operating efficiency, public acceptance of railroad securities, as measured by their market prices, remains unsatisfactorily low. But in those securities, and particularly in railroad bonds, there are hidden elements of strength, not considered in the popular market appraisals of their value. Some of these

"unappreciated" factors—such as the general reduction in ratio of fixed charges to revenues—are analyzed by Walter F. Hahn, railroad security analyst of Smith, Barney & Co., in the article on page 63.

BOUQUETS FOR RALPH BUDD: A railroad career as long and as distinguished as that just completed by Ralph Budd—whose retirement as president of the Chicago, Burlington & Quincy became effective on August 31—deserves high praise from many quarters. Such praise was fittingly forthcoming on "Ralph Budd Day" at the Chicago Railroad Fair. Pictures of the "Day's" events, on pages 66 and 67, supplement the account of it which was published, along with a review of Mr. Budd's career, in last week's *Railway Age*.

TOWARD BETTER SUPERVISION: Recognizing that supervisors are liaison representatives between top executives and employees, the Texas & Pacific is currently conducting an extensive "on-the-job" training program for its some 600 supervisors. The course, as outlined in the article which starts on page 57, is designed, according to J. B. Shores, T. & P. director of public and employee relations, "to draw our supervisory forces closer together," and enable them "to do a better job for the T. & P."

TRUCK COMPETITION PRIMER: Diversion of freight traffic from self-supporting railroads to tax-supported trucks is largely the result of non-economic or even anti-economic factors—all, in turn, the result of a political, rather than of a sound economic approach to the problem or problems involved. Some of these factors—but by no means all of them—are outlined in our leading editorial, which constitutes something of a "primer" on the situation for any railroad men—and there still are too many of them—who are not fully aware of the situation.

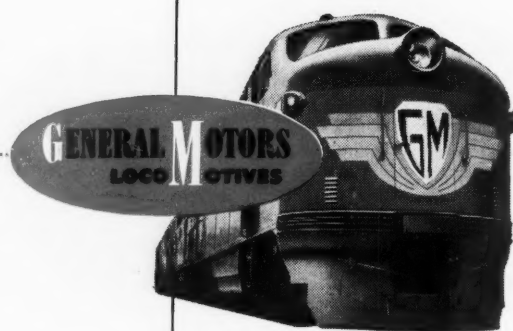
OVER THE BILLION MARK: June purchases by Class I railroads brought their total expenditures for materials, supplies, fuel and equipment during the first half of 1949 well over the one-billion-dollar mark. Details of railroad buying for June and the first six months of the current year are included in our regular monthly summary of purchases, which appears on pages 55 and 56.

A. C. L. MODERNIZES SIGNALING: By consolidating interlockings into centralized traffic control; replacing semaphores with searchlight signals; lengthening blocks, and otherwise modernizing signal facilities, the Atlantic Coast Line has reaped major benefits in the way of better train operation and reduced maintenance. The modernization program, reviewed in the article beginning on page 71, covers 121 mi. of A.C.L. main line between Richmond and Rocky Mount—a stretch of double track which handles from 40 to 50 trains a day.

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What Every Railroad Man Should Know About Truck Competition

The railroads are now showing, not any too soon, more concern about their problem of truck competition—and are giving more systematic study to it—than at any time heretofore. The timeliness of this attention is indicated by the Interstate Commerce Commission figures which show that the Class I intercity contract and common carriers alone had gross revenues of more than \$1.6 billion in 1948, compared to only \$475 million in 1940. The totals do not include the large traffic moved by private carriers by highway, and that of the smaller for-hire trucking concerns. They reveal, nevertheless, for what is only the larger part and not all of the long-haul trucking business, a revenue volume which was only 13 per cent of railroad freight revenues in 1940 and in 1948 had grown to 20 per cent.

Non-Economic Causes of Traffic Diversion

Furthermore, the trucking business has become increasingly profitable. The operating ratio of the Class I intercity for-hire trucks was 95.6 in 1940 and had dropped to 93.2 in 1948. Some railroad men have been deceived by the relatively high operating ratio of the truck lines, compared to that of the railroads. Optimism on this score vanishes when it is recalled that the operating expenses of the truck lines include all the capital charges for

roadway—an expense which still confronts the railroads after their operating ratio has been computed.

There is, then, no doubt whatever that a large volume of long-haul freight traffic which used to move by rail has been diverted to the highway, and that the ratio of tonnage so diverted to that remaining on the rails is continuing to increase. The situation, as long as it remains uncorrected, menaces the future of every man connected with the railroad business, directly or indirectly. When any business is confronted by rivalry of such magnitude, the sensible course is to determine to what degree the diversion is based on sound economics—and, therefore, must be accepted as unalterable—and to what degree non-economic factors, which can and should be resisted, may be the principal cause. Very little research is needed to bring to light a multitude of non-economic and even anti-economic factors which are the principal cause of the loss of long-haul traffic by the railroads to the intercity trucks. For lack of space only a few of these anti-economic (and, hence, potentially alterable) factors can be enumerated here—but important among them are the following:

1. To have paid, according to its relative ton-mileage, its fair ratio of highway expenditures, the average "big truck" of three axles, or truck-trailer combination, should have contributed fuel and license fees in 1947 totaling \$1,881. The actual average

levy was only \$538, indicating a contribution by other highway users and general taxpayers of an average of \$1,343 toward the expense of operating these outsized vehicles—the only ones, incidentally, which are a factor of any significance in diverting freight traffic away from the railroads. (See the article by C. S. Duncan and E. R. Feldman on this subject in the August 20 *Railway Age*.)

2. The foregoing computation of the subsidy enjoyed by the big truck assumes that its share of total highway cost is directly proportional to its ton-mile usage of the highways. Actually, a highway designed to take care of all classes of traffic except the very big truck can be built for a great deal less money than one which must also accommodate these outsized vehicles. In one state where ton-miles operated by the heaviest vehicles is 45 per cent of total ton-miles, a correct assignment of costs attributes, not 45 per cent, but 55 per cent of total highway cost to the heavy vehicles. Other studies, as conditions vary from state to state, would assign an even higher ratio of total costs to the heaviest vehicles—which, incidentally, represent only about 5 per cent of total registrations. It is evident that the estimate, given in the foregoing paragraph, of \$1,343 as the average subsidy enjoyed by the big truck is at least several hundred dollars too low. Furthermore, this estimate applies only to vehicles within the legal limitations on sizes and weights.

3. As heavily subsidized as even the legally loaded heavy trucks are shown in the above to be, the evidence is that a large percentage of their owners are not content with this generosity—and are increasing their exactions from other highway users and the general taxpayers by loading their vehicles substantially in excess of the prescribed maxima. For instance, the chairman of the Indiana State Highway Commission reported in July that when, earlier this year, enforcement of that state's maximum weight laws was intensified, from 20 to 35 per cent of the trucks weighed were found to be overloaded. The damage by trucks to highways carrying loads far in excess of those they were designed to bear, of course, adds immeasurably to the subsidy enjoyed by the big-truck haulers, as set forth in the two foregoing paragraphs. One single trip by an overloaded truck in Pennsylvania was reported to have resulted in highway damage totaling \$15,000 (see *Railway Age* of April 9, p. 65). The fines for overloading, in most states, are only a small percentage of the extra profit which an operator will make by violating the law.

4. Thomas H. MacDonald, head of the United States Public Roads Administration—and no enemy of the trucking business, as readers of this paper are well aware—asserted in a public address earlier this year: "Axle loads in excess of 18,000 lb. should not be authorized. . . . In some quarters it has been suggested that there be a gradual raising of axle load limits over a period of years. No policy could

be more wasteful of public funds." A tabulation of weight limitations in the 48 states as of the second quarter of 1948 shows that, already, nine states had established a heavier legal maximum than that recommended by Mr. MacDonald. Subsequent to this compilation, other states (e.g., Ohio) have further increased allowable weight and size limitations.

5. The actual fees paid for highway use by the biggest trucks range from \$67 to upwards of \$700, clearly indicating that no systematic or scientific plan is being followed in levying these charges. Also, there has been no proportionate increase in these charges to reflect the increase over prewar which has occurred in the cost of highway construction and maintenance. The system of "reciprocity"—whereby many states assess no taxes whatever on out-of-state trucks which use their highways—simply invites the truck operator to take out his license in the state with the lowest fee, and to enjoy a "free ride" at the expense of the highway users and other taxpayers in all the other states his vehicles traverse.

6. All railroad service is fully regulated, and the railroads are required to handle all traffic offered at prescribed rates. There is no regulation—as to rates or certificates of convenience and necessity—of trucks making long hauls of agricultural products (e.g., citrus fruits and milk). Contract carriers, as a matter of legal right, handle only such traffic as they choose—and the railroads are prevented from making rates to meet such competition where it exists unless they make similar rates on other traffic where prospective earnings are not sufficiently attractive to invite competition. Since so-called "common carrier" trucks have limited facilities, they often find it impossible to provide transportation for unattractive freight—so the railroads are left with all the business that nobody else wants. The loss by the railroads of traffic which they can handle with actually greater economy than the trucks—but which is diverted to the highway by subsidies and inequality of regulation—places a burden of arbitrarily higher costs on that traffic which must move by rail.

No Reason for Political Disparity

The above list, of political factors causing the diversion of traffic from the railroads to the trucks, as indicated at the outset, is far from complete. No item in the list is economic. Every one is arbitrarily political, indicating that the operators of outsized, long-haul trucks have been, so far, a lot more energetic and skillful in advancing their interests than railroad men have been in defending theirs. There is no inherent reason why this disparity of political strength should continue, because the solution to these issues which would adequately protect the interest of the railroads also coincides with the self-interest of 95 per cent of the users of the highways and of all payers of general taxes. The railroads' interest also coincides with the overriding national

interest in policies toward transportation which will maximize national wealth and income by channeling its transportation to the most economical agencies, not wasting the nation's substance by erecting the senseless political barriers which now exist against the selection of the best agency for the job. Who is going to tell, and sell, the sane approach to this problem to the American people if railroad men do not do it?

MECHANICAL MEETINGS ESPECIALLY PROFITABLE NOW

The incidence of the 5-day, 40-hour week makes conferences of railway supervisors—to exchange experiences with means of accomplishing the change-over at minimum expense — of greater potential profit to the industry at present than, probably, any other time in history. The meetings at Chicago on September 19-22 of the Coordinated Mechanical Associations are, therefore, most timely and deserve the cooperation of management to assure that they are well attended. This group comprises five associations of mechanical department supervisors who meet in a joint opening session and then convene for their individual annual meetings and the discussion of mutual problems of their respective crafts. The associations involved include the Air Brake, Master Boiler Makers, Car Department Officers, Locomotive Maintenance Officers and Railway Fuel & Traveling Engineers.

It might be argued that these supervisors, important key men, cannot well be spared from their posts to attend a convention so soon after institution of the shorter work week. On the contrary, a few days off of the job would be richly rewarded if it brought information—which is altogether probable—of expedients other roads have discovered for minimizing the cost of the shorter week. Also, these supervisors need to know about the latest new car and locomotive appliances, shop tools and labor-saving equipment, a large and representative selection of which will be exhibited at the convention under the auspices of the Allied Railway Supply Association.

What other reasons are there why railroads sent over 2,000 supervisors to the Coordinated Mechanical Associations meeting last year, when there was no exhibit, and which, it is hoped, may induce them to do even better this year? One deserving mention is the fact that these independent, self-supporting associations coordinate their work closely with that of the A.A.R. Mechanical Division and carry on its constructive program at the supervisory level—

an important contribution to better railroading, and one which it is profitable to recognize and encourage.

For example, what other effort on the railroads has contributed more than the Railway Fuel & Traveling Engineers' Association in its half-century of service to the cause of fuel economy and improved locomotive performance? Similarly, the air brake men, master boiler makers, car supervisors and locomotive maintenance men have found in their respective associations an effective agency for improving their service to the industry. The Coordinated Mechanical Associations put these several organizations together in a combined force for better performance in one of the great branches of railroading.

MORE, BETTER COMMUNICATION NEEDED WITH 40-HR. WEEK

In numerous ways modern communication facilities can be used to solve some of the problems brought about by the introduction of the 40-hour week on the railroads. For necessarily more intensive supervision, there will be an increasing need to telephone rather than to write letters. In all of the departments affected, there will be an added necessity to minimize time wasted when employees exhaust materials on hand or encounter unexpected difficulties which necessitate revised directions from a supervisory officer. In many such instances, the supervisor may need to confer by telephone with some superior officer or engineer at general offices before he again calls his foreman. Such occasions point to the need for modern telephone facilities with sufficient capacity to handle all calls promptly.

Such a capacity is not available on many railroads because of two bottlenecks: (1) inadequate line circuits between division offices and general offices, and (2) antiquated manually operated switchboards which require operators at all hours. The wages of these telephone operators are increasingly expensive under the 40-hour week. This is only one of the reasons for replacing these old boards with modern automatic exchanges. The required additional line circuits between offices can now be secured economically by installing wired radio, more properly known as carrier-current equipment, in which high-frequencies can be superimposed on existing line wires to transmit any reasonable number of conversations simultaneously without interfering with the present circuits on those wires. Thus it is possible to secure greatly improved telephone facilities, required for more intensive supervision—not by incurring added labor expense, but by reducing such expense.

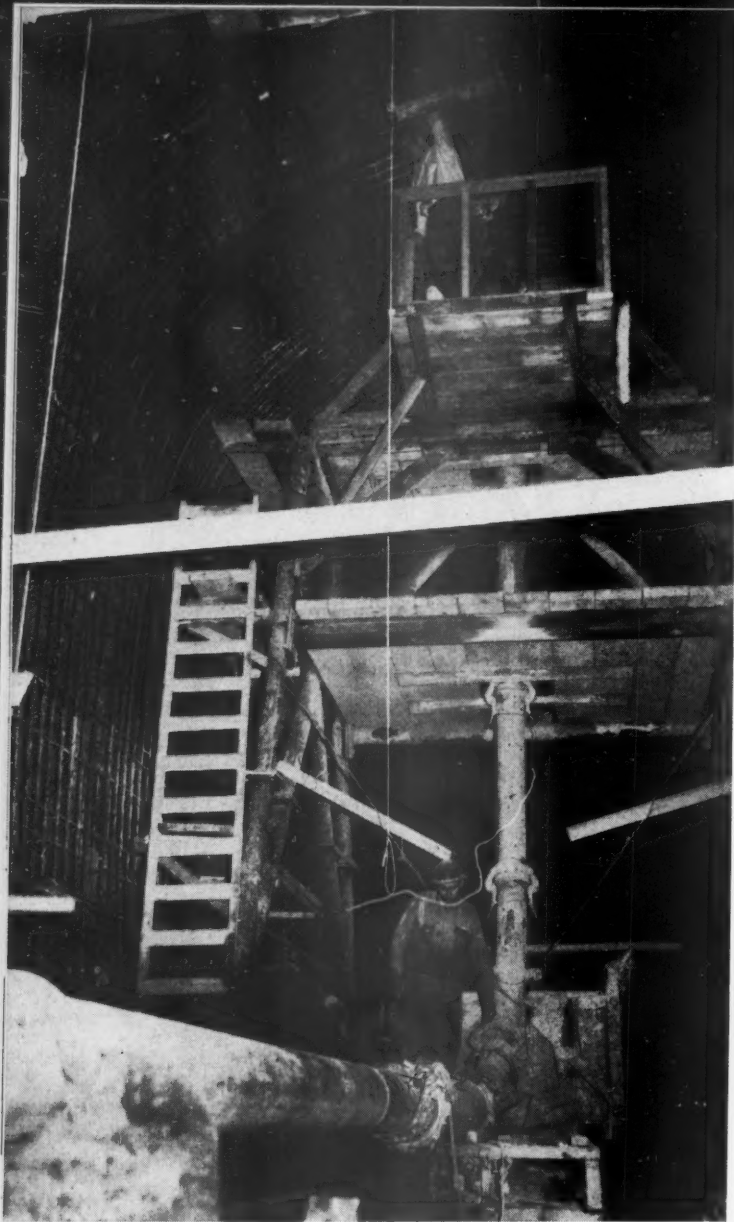
BIG TUNNEL-LINING

The adaption of modern concrete-mixing and -placing equipment to speed operations and reduce costs in railroad tunnel construction is exemplified in the concreting of the Union Pacific's new \$8,000,000 Aspen tunnel. The placing of the concrete lining, now more than half complete, is the final major step in the construction of this new 6,700-ft. single-track bore that the railroad started to drill through the Uinta Mountain range in western Wyoming about two years ago. The new tunnel parallels the present single-track Aspen tunnel, completed in 1901, which now is the only stretch of single-track in the U. P. main line between Omaha, Neb., and Salt Lake City, Utah. The road is hopeful that the new tunnel will be opened to traffic this fall.

Four Types of Equipment

Shaped somewhat like a horseshoe in cross section, the new tunnel is 18.5 ft. wide inside and 26 ft. from the floor to the highest point of the arch. The concrete lining is approximately 2 ft. thick, except for the invert which is about 2.5 ft. in thickness. In placing the lining, the contractor, the Morrison-Knudsen Company, is using four major types of equipment, namely, (1) a Noble batching plant, (2) a track-mounted concrete mixer, (3) a track-mounted Rex Pumpcrete, and (4) two concrete forms which are likewise so mounted that they can be moved forward on rails.

The initial step in the manufacture of the concrete



All photos courtesy Union Pacific

The shooting pipe, here entering at the lower left side, curves sharply upward and then backward to pass between the form and the tunnel wall



Sand and gravel are delivered by underground conveyor belts from the stock piles to the batching plant, in the background, which is a quarter mile from the east portal of the tunnel

JOB FULLY MECHANIZED

Equipment used in concreting the Union Pacific's new 6,700-ft. Aspen bore includes batching plant, dump cars, belt conveyors, mixers, Pumpcrete and movable forms

takes place at the batching plant, situated about a quarter mile from the east portal of the tunnel. In this plant, which was furnished by the J. K. Wheeler Machinery Company, Salt Lake City, the concrete aggregates—cement, sand, pea gravel, and coarse gravel—are brought together in 1-cu. yd. dry batches of the correct proportions. Each batch contains 540 lb. of cement, 1,283 lb. of sand, 712 lb. of pea gravel, and 1,357 lb. of coarse gravel, the total weight being 3,892 lb. Each batch also contains $2\frac{7}{8}$ lb. of Pozzolite. The sand and the pea and coarse gravel are stored in surge piles from which they are carried to the batching plant on underground conveyor belts.

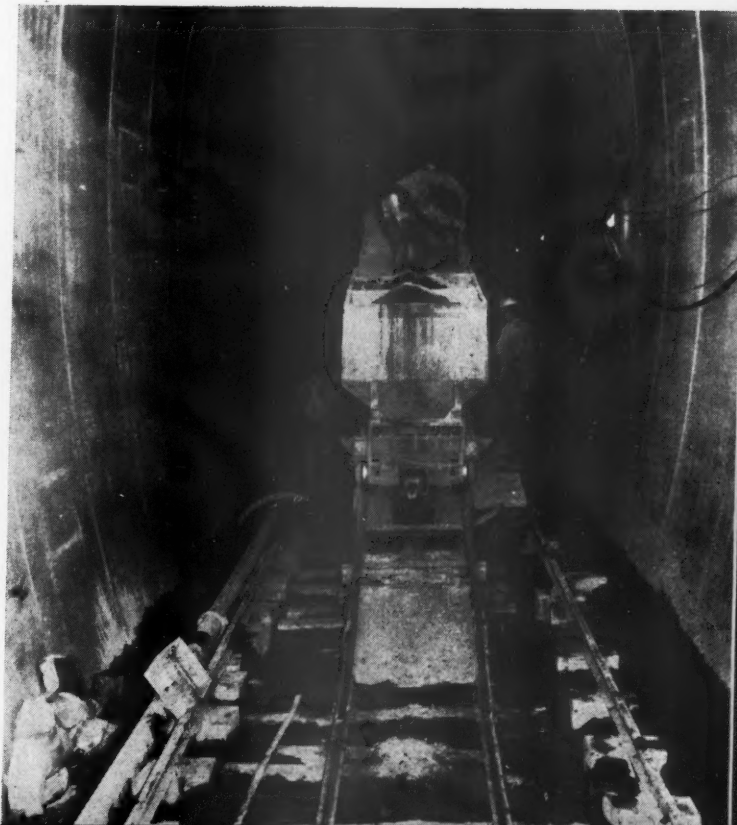
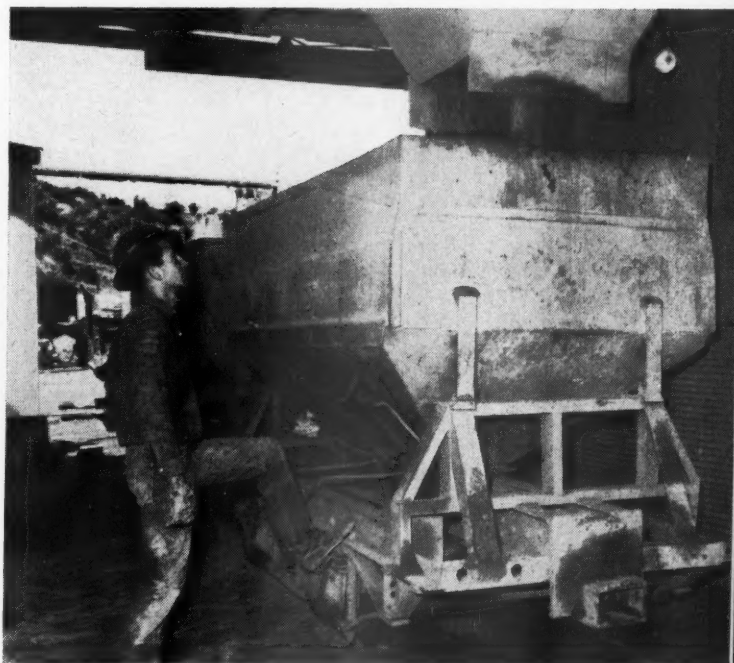
The dry batches are delivered from overhead hoppers into narrow-gage hopper-bottom dump cars for delivery to the tunnel. The dump cars each have three compartments and each compartment holds a single batch. Three of the cars, carrying a total of nine batches, are moved into the tunnel at a time. Inside the tunnel the dump cars are moved onto an inclined track where the dry mix is dumped, a compartment at a time, onto a 30-in. conveyor belt which delivers it to a dual mixer furnished by the Ransome Machinery Company, Dunellen, N. J. After mixing, the concrete is discharged into the Pumpcrete, made by the Chain Belt Company, Milwaukee, Wis., which forces the mix through an 8-in. shooting pipe directly into the form, the movement through the pipe taking place at the rate of 35 cu. yd. per hour. For reasons explained later the dump-car incline, the 30-in. conveyor belt, the mixer, the Pumpcrete, and the shooting pipe are so mounted on a track that they can be moved forward as a unit.

U-Shaped Shooting Pipe

The shooting pipe is 180 ft. long. It is shaped in the form of a letter U laid on its side, with the upper leg shorter than the lower and with the tip of the

Above (right)—A batch of dry mix being loaded from the batching plant into a narrow-gage dump car. Three of these cars, each divided into three compartments, carry nine batches on each trip into the tunnel

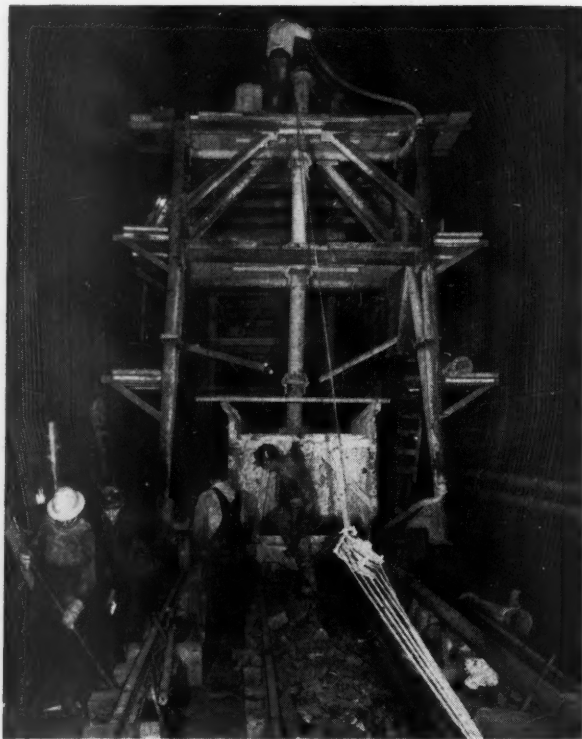
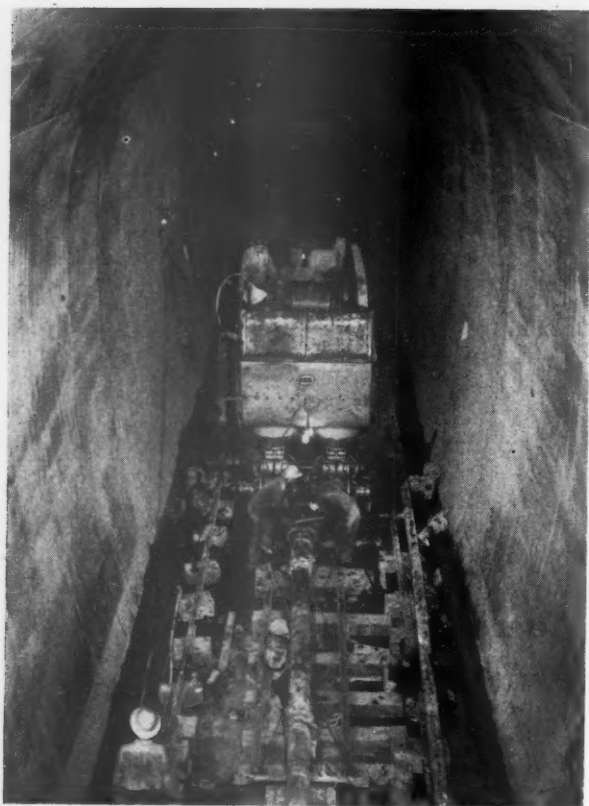
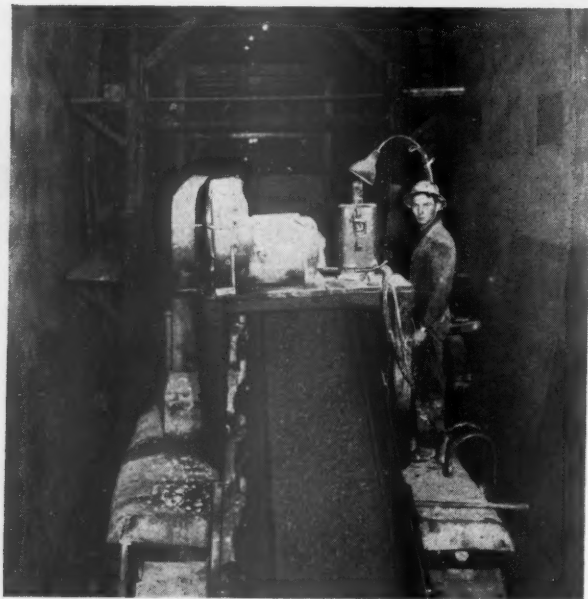
Right—On arrival in the tunnel the dump cars are moved onto an inclined track where their loads are emptied on a 30-in. conveyor belt which carries the material to the mixer



Right—The shooting pipe, together with the other concreting equipment in the tunnel, is track-mounted so that it can be moved forward a few feet at intervals to prevent the mouth of the pipe from fouling in the freshly placed concrete

Below—The dry mix being carried by the conveyor belt to the concrete mixer which is out of sight in the background

Bottom—After being mixed the concrete passes into a Pumpcrete, which forces it through a shooting pipe into the form. The Pumpcrete and a portion of the shooting pipe are in the foreground



lower leg connected to the Pumpcrete. From this connection the shooting pipe extends to the opposite end of the form, turns sharply upward (the base of the U) to the roof of the tunnel, and then turns sharply back toward the form, passing over the top of the form and extending almost to its opposite end. Thus, as concrete is pumped through the shooting pipe and flows down between the form and the wall of the tunnel, the end of the form nearest the mixer and Pumpcrete is filled first. To prevent the concrete from fouling the discharge end of the shooting pipe, this pipe, together with all the other parts of the track-mounted assembly, are moved forward several feet as a unit at frequent intervals during the concreting operation.

Timing the Operation

The two track-mounted forms were furnished by the Consolidated Steel Corporation. The amount of concrete required in each setting of a form ranges from 300 to 400 cu. yd., depending on variations in the tunnel sides. The pouring time for each setting ranges from 12 to 16 hr., depending on conditions and unforeseen delays. After the pouring of a form has been completed the concrete is allowed to set for 15 to 24 hr. before the form is moved. A series of jacks makes it possible to retract the forms from the concrete in preparation for moving them forward.

It is estimated that a total of 60,000 cu. yd. of concrete will be required to line the tunnel. More than half of this amount has now been placed. Approximately 330 men are currently working in the tunnel. The project is being carried out under the general supervision of W. C. Perkins, chief engineer of the Union Pacific.

SIX MONTHS BUYING TOPS \$1 BILLION

June equipment orders and tie purchases largest of year—
other buying, and inventories, except fuel, drop from May

The June total of Class I railroad expenditures for materials, supplies and fuel, plus equipment orders, was an estimated \$204,831,000, bringing total purchases for the first six months of the year to approximately \$1,082,034,000. The heaviest dollar volume of equipment orders in any month of 1949 was mainly responsible for bringing the June figure above the \$200 million mark. Tie buying, which was in excess of \$8 million, was the only other item in the *Railway Age* breakdown showing an increase from May figures. Purchases of materials, supplies and fuel in the first six months of the year were down about 7 per cent from the corresponding 1948 totals, but were still considerably above those for any other recent years.

For the second consecutive month inventories for all classes of materials and supplies, with the exception of fuel, showed sizeable decreases. Total value of stocks on hand dropped more than \$17 million—or close to 2 per cent—in the 31 days between May 1 and June 1. Many factors are contributing to this decline, including seasonal maintenance of way work and the natural desire to keep inventories as low as possible in a period of business uncertainty.

1949 RAILWAY PURCHASES*

	June (000)	Six Month Totals 1949 (000)	Six Month Totals 1948 (000)
Equipment**	\$ 56,270	\$ 92,510	\$ 399,909
Rail	9,775	56,081	45,043
Crossties	8,369	47,464	35,248
Other Material	84,128	557,407	569,708
Total from Manufacturers	\$158,542	\$753,462	\$1,049,908
Fuel	46,289	328,572	418,138
Grand Total	\$204,831	\$1,082,034	\$1,468,046

* Subject to revision

**Amount placed on order

The estimated value of orders for new equipment in June was \$56,270,000. This figure includes \$643,000 for 153 freight cars, \$1,900,000 for 19 passenger coaches and \$53,727,000 for 391 Diesel-electric units and 3 electric locomotives.

JUNE* PURCHASES OF MANUFACTURED GOODS (Excl. Equip. & Fuel)

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)			Six Month Totals '49 And Other Years (000)		
Year	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
1943	\$72,333	+41	Jan.	\$114,528	-11	1943	\$389,313	+70
1944	88,448	+16	Feb.	108,941	-6	1944	504,789	+31
1945	83,600	+22	Mar.	117,411	-13	1945	486,690	+36
1946	78,111	+31	Apr.	112,471	-9	1946	458,324	+44
1947	102,060	—	May	105,329	-3	1947	605,394	+9
1948	113,991	-10	June	102,272		1948	649,999	+2
1949	102,272					1949	660,952	

JUNE* PURCHASES OF RAIL

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)			Six Month Totals '49 And Other Years (000)		
Year	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
1943	\$4,584	+113	Jan.	\$7,359	+33	1943	\$27,233	+105
1944	6,508	+50	Feb.	8,645	+13	1944	39,258	+43
1945	6,627	+48	Mar.	9,653	+1	1945	35,659	+57
1946	3,840	+155	Apr.	10,792	-9	1946	24,196	+132
1947	6,388	+33	May	9,857	-1	1947	41,659	+35
1948	7,948	+23	June	9,775		1948	45,043	+25
1949	9,775					1949	56,081	

JUNE* PURCHASES OF CROSSTIES

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)			Six Month Totals '49 And Other Years (000)		
Year	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
1943	\$6,826	+23	Jan.	\$7,779	+7	1943	\$35,257	+35
1944	7,589	+10	Feb.	7,029	+19	1944	42,684	+11
1945	6,138	+36	Mar.	8,203	+2	1945	34,869	+36
1946	7,011	+19	Apr.	8,143	+3	1946	42,577	+11
1947	8,450	-1	May	7,921	+6	1947	48,557	-2
1948	7,037	+19	June	8,369		1948	35,248	+35
1949	8,369					1949	47,464	

*Subject to revision

JUNE* PURCHASES OF OTHER MATERIAL

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)			Six Month Totals '49 And Other Years (000)		
Year	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
1943	\$60,923	+38	Jan.	\$99,370	-15	1943	\$326,823	+71
1944	74,351	+13	Feb.	93,267	-10	1944	422,847	+32
1945	70,835	+19	Mar.	99,555	-15	1945	416,162	+34
1946	67,260	+25	Apr.	93,536	-10	1946	391,551	+42
1947	87,222	-4	May	87,551	-4	1947	515,178	+8
1948	99,006	-15	June	84,128		1948	569,708	-2
1949	84,128					1949	557,407	

JUNE* PURCHASES OF FUEL

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)			Six Month Totals '49 And Other Years (000)		
Year	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
1943	\$38,019	+22	Jan.	\$65,076	-29	1943	\$262,101	+25
1944	49,706	-7	Feb.	57,460	-19	1944	306,059	+7
1945	48,215	-4	Mar.	57,654	-20	1945	282,167	+16
1946	40,928	+13	Apr.	49,749	-7	1946	255,079	+29
1947	51,130	-9	May	52,344	-12	1947	329,856	
1948	74,318	-38	June	46,289		1948	418,138	-21
1949	46,289					1949	328,572	

JUNE* TOTAL PURCHASES (Excl. Equip.)

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)			Six Month Totals '49 And Other Years (000)		
Year	Amt.	% Change	Month	Amt.	% Change	Year	Amt.	% Change
1943	\$110,352	+35	Jan.	\$179,604	-17	1943	\$651,414	+52
1944	138,154	+8	Feb.	166,401	-11	1944	810,848	+22
1945	131,815	+13	Mar.	175,065	-15	1945	768,857	+29
1946	119,039	+25	Apr.	162,220	-8	1946	713,403	+39
1947	153,190	-3	May	157,673	-6	1947	935,250	+6
1948	188,309	-21	June	148,561		1948	1,068,137	-7
1949	148,561					1949	989,524	

*Subject to revision

JUNE* INVENTORIES OF RAIL

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)		
Year	Amt.	% Change	Month	Amt.	% Change
Jun. 1, 1943	\$19,424	+98	Jan. 1	\$33,243	+15
1944	22,637	+69	Feb.	36,408	+5
1945	24,238	+58	Mar.	39,054	-2
1946	23,200	+65	Apr.	42,681	-10
1947	27,990	+37	May	41,264	-7
1948	30,767	+25	June	38,365	
1949	38,365				

JUNE* INVENTORIES OF CROSSTIES

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)		
Year	Amt.	% Change	Month	Amt.	% Change
Jun. 1, 1943	\$60,479	+56	Jan. 1	\$94,256	
1944	79,004	+20	Feb.	94,164	
1945	70,302	+35	Mar.	98,833	-4
1946	75,953	+25	Apr.	101,987	-7
1947	89,782	+5	May	101,641	-7
1948	86,548	+9	June	94,615	
1949	94,615				

JUNE* INVENTORIES OF OTHER MATERIAL

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)		
Year	Amt.	% Change	Month	Amt.	% Change
Jun. 1, 1943	\$370,995	+71	Jan. 1	\$611,864	+4
1944	413,410	+54	Feb.	626,423	+1
1945	450,437	+41	Mar.	636,700	
1946	455,860	+39	Apr.	647,641	-2
1947	542,096	+17	May	642,872	-1
1948	607,278	+5	June	634,929	
1949	634,929				

JUNE* INVENTORIES OF SCRAP

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)		
Year	Amt.	% Change	Month	Amt.	% Change
Jun. 1, 1943	\$10,167	+66	Jan. 1	\$18,849	-10
1944	10,346	+63	Feb.	18,735	-10
1945	10,110	+67	Mar.	18,532	-9
1946	10,872	+55	Apr.	18,872	-11
1947	10,929	+54	May	17,936	-6
1948	13,993	+21	June	16,877	
1949	16,877				

JUNE* INVENTORIES OF FUEL

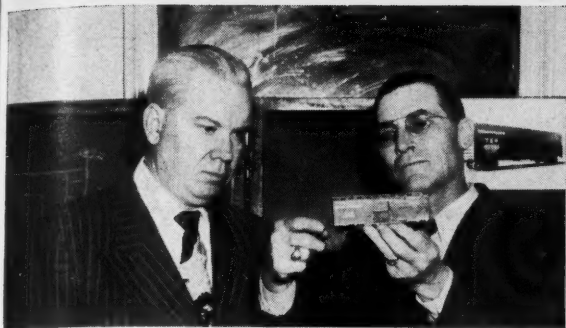
June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)		
Year	Amt.	% Change	Month	Amt.	% Change
Jun. 1, 1943	\$58,172	+43	Jan. 1	\$96,900	-14
1944	56,885	+47	Feb.	91,831	-9
1945	51,402	+62	Mar.	88,647	-6
1946	42,875	+95	Apr.	82,014	+2
1947	56,510	+48	May	81,686	+2
1948	72,512	+15	June	83,436	
1949	83,436				

JUNE* TOTAL INVENTORIES†

June '49 Compared to Other Junes (000)			June '49 Compared to Other Months '49 (000)		
Year	Amt.	% Change	Month	Amt.	% Change
Jun. 1, 1943	\$519,237	+67	Jan. 1	\$855,112	+2
1944	582,282	+49	Feb.	867,561	
1945	606,489	+43	Mar.	881,766	-2
1946	608,760	+43	Apr.	893,195	-3
1947	727,307	+19	May	885,399	-2
1948	811,098	+7	June	868,222	
1949	868,222				

*Subject to revision

†All total inventory figures taken from I.C.C. statement M-125 for the month indicated.



Above—G. F. Wilkins, car foreman at East Dallas, Tex., shows C. E. Willis, chief rate clerk from the road's general office, the mechanical features of a freight car during a supervisor-to-beginner demonstration in the supervisory training program. Right—This typical group of T. & P. supervisors attended training sessions in a specially equipped coach placed near the road's terminal in Fort Worth, Tex.



The T. & P. Polishes Its Supervisors

The Texas & Pacific, recognizing that supervisors are liaison representatives between top executives and employees, is currently conducting a five-course, 100-hr. "on-the-job" training program for its some 600 supervisors. Upon completion in August of the project's first 20-hr. course—"Analyzing the Supervisor's Job"—T. & P. officers reported good results: Management-employee relations have improved and the program appears to offer a full measure of success. The second course—"Human Relations"—is scheduled to begin September 15, with completion of the entire program not expected until late next year.

Early in 1948, W. G. Vollmer, T. & P. president, appointed a committee to study the various supervisory training programs currently available to industry and to select one that could be adapted to the needs of the railroad. Several months' investigation led to the program offered by the Agricultural & Mechanical College of Texas. On January 17, 1949, all supervisory forces at the general offices in Dallas, Tex., from chief clerks to top-level officers, began attending conferences on company time and at company expense. Following completion of the initial course at Dallas, the program shifted to Fort Worth, Tex., Marshall and eight other large terminal points, in succession.

The classes are actually roundtable discussions, held wherever supervisors can gather—in conference rooms, hotel rooms, offices or training cars. Attendance at any single session is limited to 18 supervisors, so that all may participate in a free and orderly discussion. A course consists of 10 two-hour conferences, graduates of which receive certificates of accomplishment and attendance.

The courses comprising the program, with the purpose of each, are:

Analyzing the Supervisor's Job—To develop the supervisor's realization of general responsibilities and, particularly, the responsibility for job training. This course also provides practice in job instruction.

Human Relations—To present a method for analyzing

personal problems and for establishing good employee relations. This unit offers opportunity for practice in handling employee problems and in evaluating workers.

Work Improvement—To point up the importance of and need for daily planning of work and careful study of work problems. The improvement and simplification of job procedures is considered in this unit.

Accident Prevention—To demonstrate correct methods for analyzing accidents and studying hazards. Ways to develop preventive measures are discussed.

Leadership—To provide a survey of the qualities needed for leadership, and to show how they may be developed in the supervisor.

Outlines of topics and purposes are specially prepared for each unit and given the supervisors at the outset of each course. Also issued at that time are small pocket-size cards upon which are printed helpful reminders to supervisors for ready reference as they pursue their jobs. The classes are conducted by conference leaders furnished by the Industrial Extension Services of A. & M. College.

A railroad representative is delegated at every session to take notes of the discussions, affording a complete, composite picture of the questions and answers which flow during the meetings. Thus the company is collecting a vast storehouse of information dealing with the problems of railroad supervisory forces, which is expected to be of inestimable value. The railroad will publish a booklet containing many of these data.

The T. & P. management believes that, from top officers on down, each supervisor should open the way for employees under his jurisdiction to come to him freely with questions and suggestions; be prepared and willing to pass along to management the ideas, suggestions and attitudes of the workers; and be able to interpret and put into effect the rules, regulations and general policy of the company. It was these convictions that motivated the railroad to undertake the training program as a means of insuring development by supervisors of a thorough understanding of all phases of responsibility.

J. B. Shores, T. & P. director of public and employee relations, says of the program: "I do not know of any activity on our railroad which has been so unanimously and enthusiastically received as this supervisory training course. We have had nothing but praise for it from one end of the railroad to the other. It has served to draw our supervisory forces closer together and has also resulted in their gaining a greater knowledge of the work and responsibilities of each other. Those of us in the shops, on the trains and behind the desks will be doing a better job for the T. & P.—and doing it together—when these courses are completed."



Territory over which the 42 M-1 class 2-8-4 locomotives are operated

Investment of \$7.6 million in new power and C.T.C. will save \$1 million annually — 91 old units retired

One of the principal improvements instituted by the Louisville & Nashville since the end of the war has been the acquisition of new road freight steam power and Diesel-electric pusher locomotives.

The new steam power comprises 22 heavy 2-8-4 freight locomotives which were built by the Lima Hamilton Corporation in the early part of this year and which have been the major factor in enabling the L. & N. to retire 91 old steam locomotives. They have shown a fuel saving of 12 per cent over the next best steam freight locomotives on the L. & N., and, in conjunction with a four-unit Electro-Motive Diesel pusher locomotive, have made it possible to increase the tonnage rating of coal trains over several principal divisions from 6,650 tons to 9,500 tons while helping to increase the system average gross ton-miles per train-hour by 18 per cent.

This new steam and Diesel motive power, together with an extension of C.T.C. installation, cost some \$7.6

L. & N. STEAM-DIESEL

million and is expected to result in operating savings of about one million dollars per year. Another \$475,000 is expected to be saved annually when 30 new Diesel switchers are placed in service.

Both Speed and Tonnage Increased

These 2-8-4 locomotives are designated the M-1 class, and bring the total number of this class to 42. The first 20 locomotives of this class were built by the Baldwin Locomotive Works. Of 14 completed in the fall of 1942, 10 have been used continuously to date in heavy freight service, and four throughout a period of approximately 5½ years ended May, 1948, in both heavy freight and passenger service. The next lot of six were delivered in the third quarter of 1944, and have been used continuously in heavy freight service.

These M-1 locomotives have been one of the principal factors in increasing the road's train-miles per train-hour from 14.9 in 1942 to 16.5 in May, 1949, the increase in speed occurring at the same time that tonnages per train were increased. The 2-8-4's are used principally between Corbin, Ky., and DeCoursey, a run of 185 mi., and between Neon, Ky., and DeCoursey, 276 mi. On this latter run the locomotives are serviced at Ravenna, about half way en route, while the train is being switched and inspected. The M-1's are also used between Loyall, Ky., and Corbin, 67 mi., when not needed on the first two runs.

The enginehouses required or used for these locomotives are at the turning points, Corbin, DeCoursey and Neon, and at Ravenna where the locomotive is serviced during the layover of the train.

The M-1's have a tractive force, including booster,

The maintenance cost for four of these locomotives averaged 12.12 cents per mile during a 6 1/3-year period



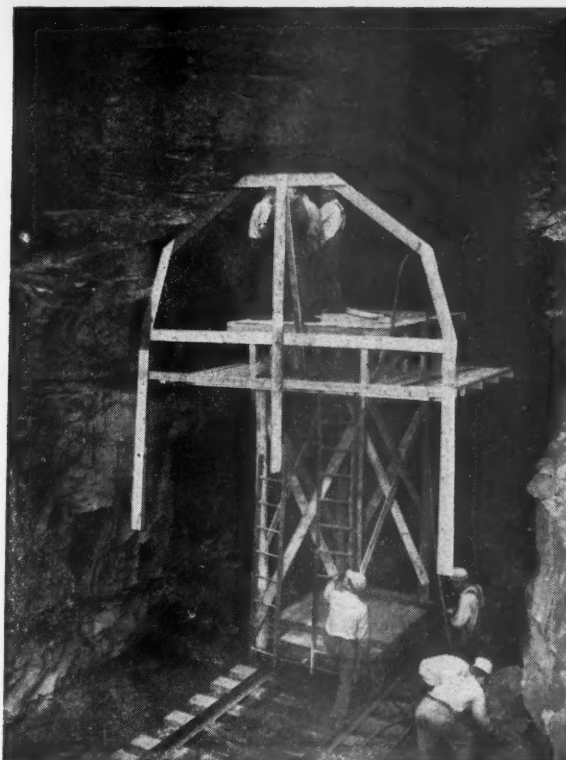
SEL TEAM CUTS COSTS

of 79,390 lb. and are capable of handling a gross train weight of 9,950 tons at about 40 mi. per hr. On test with a dynamometer car they developed 4,503 maximum drawbar horsepower at 42 m.p.h. They have 69-in. drivers, are roller-bearing equipped throughout except on crankpins, and have one-piece bed frames with integral cylinders. The tenders carry 25 tons of coal and 22,000 gal. of water.

Availability High—Maintenance Low

The M-1 class locomotives have high availability, with an average turning time for mechanical servicing requirements at the end of each trip of less than 1½ hours. Monthly inspection and boiler washes, and quarterly and semi-annual inspections, are given in 24 hours. An annual inspection and repairs takes 7 days. They go 300,000 miles between Class 3 repairs. No Class 5 repairs are needed or extended to these locomotives. The 20-year old 2-8-2's replaced by these M-1's required 14 days for a Class 5 repair, which includes the annual, made only 180,000 mi. between Class 3 repairs, and required three Class 5 repairs between Class 3's.

In February, 1943, accurate records of operating costs were started on four of the Baldwin locomotives. Table 1 shows the average costs per mile from the time they were about six months old to the present. The costs listed in this table include all repairs, both running and classified, all enginehouse expense, fuel, water, lubricants and supplies. Table 2 gives the total accumulative maintenance cost of the same four locomotives over the same period. The average maintenance cost per mile was 12.12 cents during the 6½ year period. The four locomotives underwent one Class 3



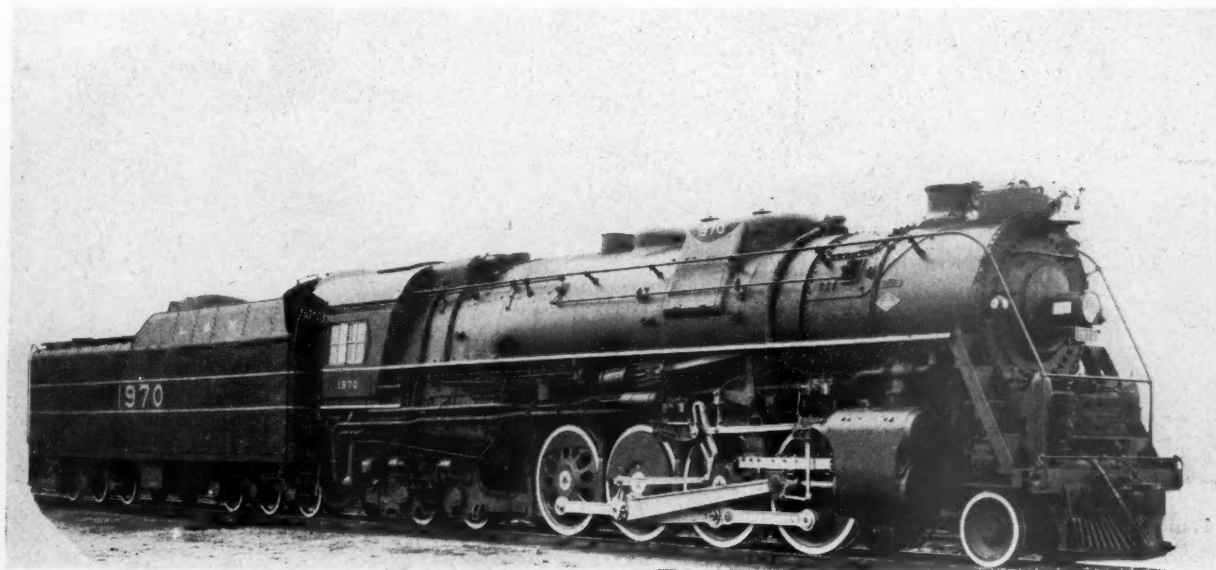
To make certain that tunnels had proper clearance for the large M-1's, a silhouette of the locomotive was wheeled through by hand and obstructions were chipped off

repair during this interval at an average cost of a little over \$7,000 each, which is included in the total repair cost.

Savings from Sized Coal

Over and above the 12 per cent saving in fuel effected by the M-1's over the 2-8-2's when equivalent grades of fuel were burned, an additional saving of over 10 per cent in the coal bill has been made by using sized coal. This has resulted in a saving of over \$1,000,000 a year on the railroad's fuel bill alone. The use of this sized and washed coal with all fines removed has also eliminated the stopping up of flues and the slagging of the flue sheets, and has reduced

One of the group of 22 M-1's built by Lima-Hamilton which developed 4,503 drawbar horsepower at 42 m.p.h.





The Diesel pusher is cut off at the top of Elkatawa Hill without stopping the train



Crawford yard, just north of Hazard, is a major pick-up point where trains originating at Neon or Hazard fill out

clinkering of the fire. By actual test the better coal was also shown to be capable of increasing the boiler evaporation by about 15 per cent.

All coal used by the L. & N. now has a minimum size limit of 3/8 in. Most of it has a maximum size limit of 3 in. to prevent undue flaking and crushing. Coal from some areas is allowed to go as large as 4 in., and in some cases even to 6 in., depending on the combination of various qualities and the availability.

The effect of changing over from 100 per cent consumption of run-of-mine coal in the beginning of 1948 to the 100 per cent use of washed and sized coal in 1949 is shown in Table 4. The average for the first five months of 1948 was 138.2 lb. coal per 1,000 gross ton-miles. In 1949 the corresponding five-month average was 123.2 lb., or a reduction of 10.85 per cent.

Diesel Pusher Operation

To permit a single 2-8-4 locomotive to handle 9,500-ton trains over the entire run from Neon to DeCoursey, 276 miles, Diesel pusher service is employed over Elka-

TABLE 1—COST OF OPERATING FOUR 2-8-4 STEAM LOCOMOTIVES OVER A 6 1/3-YEAR PERIOD (*)
(Locomotives 1960, 1961, 1962, 1963)

Period	Cost per Mile per Locomotive
1943 (11 Mos. Feb.-Dec.)	\$ 0.38
1944	0.44
1945	0.60
1946	0.60
1947	0.68
1948	0.97
1949 (5 mos. Jan.-May)	1.10

(*) — Includes fuel, water, lubricants, supplies, enginehouse expense, and all repairs (classified and otherwise).

TABLE 2—MAINTENANCE DATA FOR FOUR 2-8-4 LOCOMOTIVES, BUILT IN 1942, FROM AGE OF SIX MONTHS TO JUNE 1, 1949
(Locomotives 1960, 1961, 1962, 1963 (*)

Total repair cost	\$ 220,729
Total miles run	1,821,068
Cost per mile	\$ 0.1212

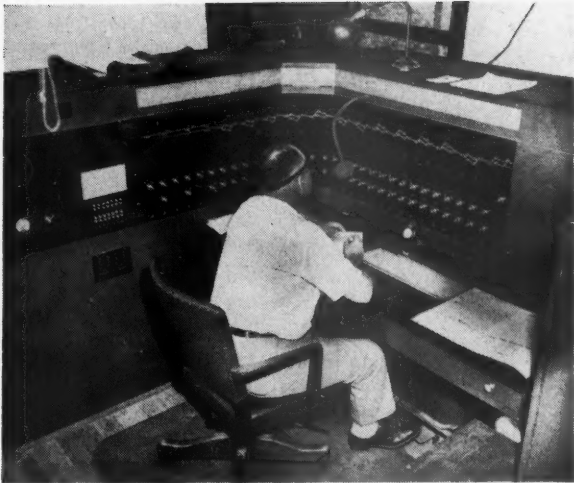
(*) Includes cost of one Class 3 repair to each locomotive, given at approximately 300,000 miles

TABLE 3—COST DATA FOR FREIGHT HELPER DIESELS (AUGUST 1948—MAY 1949 INCL.)

Maintenance, fuel and lubrication cost	\$ 51,923.87
Total miles operated	103,100
Average cost per mile (per unit)	\$ 0.50
Maintenance cost only	\$ 14,697.65
Maintenance cost per mile (per unit)	\$ 0.14

TABLE 4—COAL CONSUMPTION IN LB. PER 1,000 G.T.M.

	1948	1949
Jan.	151	130
Feb.	142	129
March	146	130
April	128	118
May	124	109
June	125	...
July	120	...
August	123	...
Sept.	121	...
Oct.	126	...
Nov.	128	...
Dec.	132	...
(Average first 5 mos.)	138.2	123.2
Savings from sized-washed coal, per cent		10.85



The C.T.C. control board at Ravenna, Ky., which controls 82 miles of track between Irvine and Perrit

tawa Hill, which is about two thirds of the way from Neon to Ravenna. Northbound this hill has a three-mile upgrade of 1.2 per cent; southbound it has four miles of 1 per cent grade. A Diesel pusher locomotive consisting of four 1,500-hp. units, constantly available at the hill, is required to push all northbound loaded-car trains and some southbound empty-car trains over the grades.

Five 1,500-hp. E.M.D. F-3 units (two A units and three B units) are assigned to this service as it is necessary to exchange, each week, one unit and send it to Ravenna engine terminal for monthly inspection and maintenance, there being no maintenance facilities at Elkatawa Hill.

While the primary purpose of the Diesel pushers is to help the 2-8-4's up the 1.2 per cent grade with a train of loaded cars, they are also used on some southbound trains of empty cars. Normally a 2-8-4 on a southbound train handles 115 empties unassisted up the 1 per cent grade. As the 115-car trains of empties are not quite sufficient to balance the trains of loaded cars going in the opposite direction where an equal number of trains are to be run each way, some of the southbound trains of empties carry 140 cars. When 140 cars are run in one train, the Diesel pusher assists the road locomotive up the 1 per cent southbound grade.

Before the 2-8-4's were assigned to the run over Elkatawa Hill, three Diesel units were used to help the 2-8-2 and its 6,650-ton train up the northbound grade.

Pushers Uncoupled without Stopping

Two operating practices were developed by the L. & N. to improve the Diesel-pusher operation. With the first one an emergency application of air by either locomotive automatically cuts off the power of the Diesel pusher. The second development is that pushers are uncoupled at the top of the hill without having to stop the train.

The equipment used for uncoupling while in motion

consists of two long rods which fit in a special rack of the caboose of the train being pushed. The first rod shuts off the angle cock on the caboose immediately prior to uncoupling. The second rod has a chain on the top leading to the caboose platform and contacts a piece of iron clamped on the train line. Pulling up on the chain breaks the train line connection without damage. The conductor can also close the locomotive angle cock by the same rod that is used to shut the caboose cock.

When starting a train up the Elkatawa grade, curvature prevents the engineman on the Diesel pusher from seeing the steam locomotive on the head end. To overcome this difficulty several switches and ordinary light bulbs were installed along the right-of-way. When the steam locomotive engineman is ready to start, the throttle is opened wide and at the same time the nearest switch is thrown lighting up a bulb near the Diesel locomotive. The steam locomotive throttle is left wide open until the Diesel is ready to start.

Other Helper Service

Helper service employed at other points is best illustrated by following an average run of a typical train from Neon to DeCoursey and from Corbin to DeCoursey. An M-1 leaving Neon with 9,500 tons runs the 153 miles to Ravenna unassisted except for the Diesel pusher help over Elkatawa Hill. Two M-1's are

used for the 27-mi. run from Ravenna to Winchester. The limiting grade is 0.4 per cent compensated, with one continuous section of 0.4 per cent grade 15 miles long. The M-1 pusher is cut off at Winchester without stopping the train in the same manner that the Diesel pusher is cut off at the top of Elkatawa Hill. The 93 miles from Winchester to DeCoursey is operated with a single 2-8-4 handling the 9,500-ton train.

On the second major run to which the M-1's are assigned, two leave Corbin with 8,300 tons. At Ford, Ky., 80 miles from Corbin, a third M-1 is added to the train to push it up the heavy grade to Winchester. From Winchester to DeCoursey a single M-1 handles the 8,300-ton train. Normally the 8,300-ton train is continued through to DeCoursey without filling out to the 9,500 tons which the M-1 handles on trains from the other division into Winchester. Actually, on test, the locomotives have shown sufficient capacity to handle well over 9,500 tons. On one particular test, 11,056 tons were moved from Winchester to DeCoursey in 3 hours 16 minutes, making two stops. The locomotive was worked at capacity only when starting.

If M-1's are available beyond requirements on the two runs just described, they are used between Corbin and Loyall, a run of 67 miles. On this division one M-1 handles 8,300 tons out of Loyall as far as Emanuel, Ky., a run of 57 miles. Up a three-mile hill westward out of Emanuel a 2-8-2 pusher is used. The M-1 handles the train the remaining distance to Corbin unassisted.

"Railroad prospects depend first of all upon the general economic situation of the country. Although that is true of all lines of business, it applies particularly to railroads because their sole function is to transport goods and people, and the volume of traffic is therefore directly tied to the volume of production and consumption. . . .

"With . . . less than adequate earnings in a period of peak peace-time traffic, it is pertinent to ask whether the railroads can be expected to establish their earning power at a level of 6 per cent on net investment. The answer to that question is a key to the health and security of rail transportation and has an important bearing upon the health and security of our national economy.

"There is not the slightest doubt in my mind that the country can afford and should allow the railroads to make 6 per cent on net investment year in and year out. In fact, I go further than some of my associates in the industry in believing that 6 per cent should be the floor and not the average of railroad earnings. It is a modest figure compared with earnings in other essential industries. It is vitally needed to insure the ever-progressing rail transportation which the country wants and must have. The only thing that stands in the way of its realization is public indifference. We must have that degree of public acceptance which will put pressure on government to allow the railroads to charge compensatory rates and fares for their services and to give the railroads equal treatment with all other forms of transportation. . . .

"Trucks have not come forward with a complete transportation service for the public, and their charges are higher. In view of this, I cannot see now that they can supplant the railroads. However, volume of traffic is important to the successful operation of the railroads, and any diversion of traffic is harmful to the railroads and to those who look to them for transportation. How long the railroads can con-

tinue to compete under private management with trucks that are subsidized and that take the most profitable traffic, leaving the less profitable for the railroads, I cannot say. It is hoped, however, that the unfairness to the railroads will soon be recognized by the law-makers and corrected, in order that the cheaper, complete, all-around transportation system under private management may be preserved.

"The railroads do not advocate repressive measures against other forms of transportation. All they ask and want is equal treatment of all forms of transportation. Railroads are self-supporting. On the other hand, the public purse is used to provide almost all the fixed investment required to carry on most other forms of transportation—the improved waterway channels, the airways and airports, the roads and streets—and to provide many services for them. And these things are done without, in most cases, making an adequate charge for the use of such facilities in carrying on the business of commercial transportation. The result is that the rates charged by these carriers for their service need not and do not reflect the full cost of providing the service. This discrimination should and must be removed. . . .

"Whatever helps to improve the financial situation of any individual railroad contributes by that much to the betterment of the industry as a whole. Sound economic conditions in transportation can be enjoyed only with vigorous, progressive railroads, which means railroads with adequate earnings and good credit. With growing appreciation by regulatory authorities and the public of the railway case for better earnings, the railroads can be counted upon to continue their record of both financial and physical progress."

—Excerpts from a lecture on "The Outlook for Railroads," presented at the School of Banking of the University of Wisconsin, Madison, Wis., on August 25, by Wayne A. Johnston, president of the Illinois Central

Unappreciated Elements of Strength In Railroad Bonds

The market's appraisal of these securities has not matched the tremendous change in circumstances since the Thirties, as reflected in ratios of fixed charges to revenues

Only a few years ago some of the favorable aspects of the railroads' financial position, at least those better situated, were the subject of widespread discussion. Traffic and revenues had increased to record breaking levels; the heavier traffic and new tools and methods were improving operating performance; a very large part of earnings was being withheld from stockholders and used to reduce debt, pay for additions and betterments and strengthen cash and working capital positions. Fixed charges were being cut sharply by reorganization, purchase and retirement of debt and refunding operations which substituted low for high coupon bonds. Railroad bond prices benefited accordingly.

A considerable change in investment attitude has occurred in the past two years. The favorable aspects have been stressed only occasionally. Most of the time the unfavorable aspects have been in full public view. On occasion (May, 1947; June, 1949), fact has succumbed to fancy and prejudice determined railway security prices, and buying opportunities have been presented. This year completion of our postwar adjustment period may well coincide with the greatest despondency regarding the railroads and their securities.

New Elements of Strength

This brief discussion is no attempt to survey all phases of the complex railroad industry. Rather it is an effort to draw attention to some of the favorable developments of the past ten and twenty years that have created for a large segment of railroad debt tangible elements of financial strength that were not present before. Others have been doing such a fine piece of work of discrediting railroad debt as a source of income that to repeat the bear argument seems superfluous. Let it suffice here to outline some of the tremendous financial changes that have gone a long way toward offsetting the well publicized adverse aspects; and also to show statistically that these changes have not been uniform for all companies, but in fact have been quite dissimilar.

Important Changes Since 1929

Table 1 includes data for the 25 largest railroads — those whose operating revenues in 1948 exceeded \$100 million — whose bonds are available for invest-

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ment and speculation. The three years selected (1929, 1936 and 1948) were years of good peacetime business, years in which the railroads did not suffer from insufficiency of traffic.* All three years were followed by periods of reduced business which made for smaller railroad traffic, revenues and earnings — 1929 by the unparalleled depression of the early Thirties; 1936 by the quick, relatively short 1937-1938 collapse; 1948 by the current post-war adjustment period, which though probably not yet completed on an overall basis, does appear to have been nearly completed with respect to important individual segments of the total economy.

Significant Ratios Greatly Improved

Since 1929, and especially since 1936, it will be noted, ratios of debt and fixed charges to operating revenues, maintenance charges and net current assets have changed tremendously for the better. The data for all Class I roads are given at the end of Table 1. Of importance also are the fluctuations in the ratio of fixed interest debt to operating revenues, which, for Class I roads, varied from 222.1 per cent in 1929 and 337.6 per cent in 1936 to 107.8 per cent in 1948.

Highly significant is the very vulnerable position of the railroads in 1936-1937, which goes a long way toward explaining the drastic collapse of railroad bond values during 1937 and 1938 and the subsequent very slow price recovery which did not go very far until well into the war period of very large earnings. In most respects the railroads were considerably weaker in 1936 than in 1929, so that the impact of a period of reduced traffic in 1937 and 1938, though relatively short as compared with 1929, had almost as bad an effect on sentiment toward railroad bonds and on their prices as did the much longer collapse of the early Thirties.

Now, however, in highly significant respects, the positions of many of the railroads are stronger than in 1929 and 1936. Now, to an extent not generally

* Relative to surrounding years.

TABLE 1. — HOW THE POSITION OF LEADING RAILROADS HAS IMPROVED IN 20 YEARS

	Ratio of Fixed Charges to			Operating Ratio Needed to Cover			Ratio of Fixed Charges to			Operating Ratio Needed to Cover		
	Operating Revenues	Maintenance Charges	Net Current Assets ¹	Actual	Fixed Charges		Operating Revenues	Maintenance Charges	Net Current Assets ¹	Actual	Fixed Charges	
Atchison, Topeka & Santa Fe							New York, Chicago & St. Louis					
1929	4.2%	12.3%	15.9%	66%	89%		1929	10.8%	34.5%	...	71%	85%
1936	6.9	18.3	18.3	80	87		1936	18.0	75.0	300.0%	64	82
1948	1.3	3.8	4.7	73	94		1948	3.2	12.0	65.5	68	90
Atlantic Coast Line							New York, New Haven & Hartford					
1929	9.5%	28.6%	28.9%	74%	92%		1929	12.6%	41.2%	267.2%	66%	84%
1936	14.9	49.5	66.9	77	82		1936	19.3	66.1	...	74	70
1948	2.9	8.0	19.1	87	94		1948	3.8	13.1	42.2	79	87
Baltimore & Ohio							Norfolk & Western					
1929	11.3%	33.4%	70.8%	74%	87%		1929	4.3%	14.3%	10.2%	56%	95%
1936	19.5	61.6	1,100.0	73	78		1936	2.3	8.5	9.1	53	92
1948	4.8	14.8	37.3	81	89		1948	1.0	3.3	1.8	68	101
Chesapeake & Ohio							Northern Pacific					
1929	6.4%	18.2%	133.3%	66%	92%		1929	15.1%	47.1%	108.1%	73%	96%
1936	8.1	30.0	70.1	56	89		1936	23.1	74.1	73.7	78	81
1948	2.8	8.5	34.3	76	94		1948	6.5	18.9	20.7	77	89
Chicago, Burlington & Quincy							Pennsylvania²					
1929	5.7%	18.4%	49.5%	69%	89%		1929	7.2%	22.4%	...	72%	88%
1936	9.7	32.1	133.8	73	79		1936	11.3	37.9	101.0%	71	81
1948	2.4	8.1	15.8	70	90		1948	4.2	12.7	25.5	83	90
Chicago, Milwaukee, St. Paul & Pacific							Reading					
1929	8.2%	23.7%	96.6%	75%	85%		1929	8.3%	22.4%	188.4%	78%	95%
1936	13.7	38.9	1,241.7	78	76		1936	14.7	59.2	290.0	68	80
1948	1.6	5.0	5.8	83	89		1948	4.1	11.5	36.0	79	92
Chicago & North Western							St. Louis-San Francisco					
1929	9.1%	27.7%	33.7%	76%	85%		1929	14.2%	42.7%	307.3%	71%	83%
1936	15.1	41.1	309.2	84	75		1936	25.7	67.5	...	82	67
1948	1.1	3.5	7.4	85	91		1948	2.8	8.9	9.3	79	92
Chicago, Rock Island & Pacific							Seaboard Air Line					
1929	8.1%	25.3%	333.3%	73%	84%		1929	19.1%	63.4%	...	73%	75%
1936	18.7	52.2	...	86	70		1936	24.3	68.4	...	83	67
1948	0.9	3.1	5.2	73	90		1948	1.6	4.7	4.8%	79	92
Erie							Southern					
1929	10.5%	31.5%	128.5%	76%	86%		1929	12.3%	36.7%	80.3%	72%	86%
1936	17.3	64.8	...	69	72		1936	17.4	58.5	330.0	70	75
1948	2.9	10.5	13.9	74	89		1948	5.2	16.7	33.7	75	88
Great Northern							Southern Pacific					
1929	14.5%	48.9%	77.2%	66%	88%		1929	9.1%	30.4%	102.9%	71%	87%
1936	19.9	79.8	64.5	63	75		1936	14.9	57.1	104.4	73	80
1948	3.5	10.6	17.8	75	91		1948	3.4	11.6	14.3	78	89
Illinois Central							Union Pacific					
1929	10.1%	28.4%	1,415.4%	77%	85%		1929	7.8%	25.6%	83.3%	68%	93%
1936	14.8	50.1	178.1	74	75		1936	9.4	32.0	30.0	70	86
1948	3.9	11.6	21.5	75	88		1948	1.5	4.7	6.3	73	97
Louisville & Nashville							Wabash					
1929	8.3%	21.4%	37.2%	79%	91%		1929	9.3%	30.6%	546.2%	73%	85%
1936	11.4	34.7	34.5	72	83		1936	16.6	56.6	214.0	74	71
1948	3.3	9.5	9.2	82	96		1948	1.6	6.2	12.0	72	90
New York Central²							Class I Railroads					
1929	8.5%	24.5%	...	75%	89%		1929	10.8%	33.0%	136.8%	72%	88%
1936	14.1	49.4	2,125.0%	74	77		1936	16.1	52.7	270.0	27	78
1948	5.0	14.5	62.5	86	88		1948	4.4	13.8	26.3	77	90

¹Net current assets includes U. S. Treasury bonds held as investments and not reported in current assets.²Fixed charges exclude that portion of rents for leased roads returned to the company as other income.

realized, they are in a position to withstand a period of adversity. Particularly impressive is the relation of fixed charges to maintenance charges — the railroads' most important controllable expense item. In 1929 for Class I railroads it required a 33 per cent reduction in maintenance charges to reduce expenses by an amount equal to fixed charges. In 1936 the situation was worse in this respect, as a 53 per cent reduction was necessary. Now (on the basis of 1948 figures) it would require only a 14 per cent reduction in maintenance charges to reduce expenses by an amount equal to fixed charges.

The differences in the improvement (or absence thereof) in the positions of individual companies have been very great. Revenue growth has varied widely, some companies having had 1948 revenues twice those of 1929 compared with an average increase of about 50 per cent. Also worthy of note have been the wide differences in the changes in the amounts of debt and in the fixed charge reduction.

Of 48 large railroads, 10 in 1948 had fixed charges

less than 2 per cent of revenues, 11 between 2 and 3 per cent, 12 between 3 and 4 per cent, 9 between 4 and 5 per cent and 6 over 5 per cent. In 1936, on the other hand, 46 of the 48 railroads had fixed charges over 5 per cent of revenues — i.e. all but the Norfolk & Western and Wheeling & Lake Erie. In 1936, 42 of the 48 had fixed charges of over 10 per cent of operating revenues. Such relationships are by no means the only guide to the investment merit of railroad debt — but that there has been considerable offset to the increased cost of operation is indicated by the fact that for Class I railroads operating ratio has not increased as much as the ratio of fixed charges to operating revenues has been reduced. (See Table 2.)

Junior Mortgages in Sounder Position

One conclusion that may be drawn from the large declines in the ratios of fixed charges to operating revenues is that differences between first mortgage bonds, junior mortgage bonds and unsecured bonds

are not nearly so great as they used to be. For example, when in 1929 the Southern Pacific's fixed charges were 9.1 per cent of operating revenues and particularly in 1936, when the ratio was 14.9 per cent, reorganization would probably have meant a very considerable difference in the treatment accorded holders of secured bonds and holders of unsecured bonds. But with 1948 fixed charges only 3.4 per cent of revenues, differences between bond issues have been greatly reduced. The debentures are much nearer

TABLE 2.—CLASS I RAILROADS, PER CENT OF OPERATING REVENUES

	Operating Expenses	Fixed Charges	Total	Pre Fed. Income Tax Net Income
1929	72%	11%	83%	16%
1936	72	16	88	5
1948	77	4	81	12

in quality to the secured bonds than was formerly the case. This development has not yet been very fully appreciated by the investing public, but it probably will be in time. And as it is, price and yield spreads between senior and junior issues of the same company will probably narrow.

Financial Reorganizations Less Important

In this connection it is also to be realized that when a railroad company's fixed charges are a very low per cent of revenues, financial problems having to do with debt and fixed charges (other than refunding of maturing bonds) tend to disappear. Any financial problems would have to do with operations. Thus, financial difficulties of a serious nature, produced by operating rather than debt problems, could not be solved, as in the past, by a financial reorganization that merely reduced debt and fixed charges. Nothing

TABLE 3.—EXAMPLES OF IMPROVEMENT IN FIXED CHARGE RATIOS

	Fixed Charge Ratio(1)		Operating Ratio(2)	
	1948	1936	1948	1936
Atchison, Topeka & Santa Fe	1%	7%	73%	80%
Chicago, Rock Island & Pacific	1	19	73	86
Delaware & Hudson	3	17	77	81
Denver & Rio Grande Western	3	23	71	80
Illinois Central	4	15	75	74
Kansas City Southern	4	21	55	63
New York, Chicago & St. Louis	3	18	68	64
Pittsburgh & West Virginia	5	23	66	70
St. Louis-San Francisco	3	26	79	82
St. Louis Southwestern	3	18	61	68
Seaboard Air Line	2	24	79	83
Wabash	2	17	72	74
Western Pacific	1	24	75	86
Wheeling & Lake Erie	2	4	61	70

(1) Ratio of fixed charges to operating revenues.

(2) Ratio of operating expenses to operating revenues.

much of a financial problem could be cured by tinkering with fixed charges equal to only a few per cent of revenues. An entirely new kind of treatment would have to be offered if the railroad were to continue to operate. Generally speaking, such new treatment would probably produce long-term satisfactory results for the railroad bondholder, as his claim represents a very small part of the value of fixed assets and as interest charges thereon are very small in relation to our

national financial economy and the important part played by our railroads in that economy.

The positions of individual railroad bonds cannot be measured solely by the percentage of operating revenues consumed by operating expenses. The earnings protection accorded fixed charges can be importantly affected by other factors — notably non-operating income and debit or credit for equipment hire and joint facility rents. Thus, the latter must be considered in any analysis of the preceding and following figures before drawing hard and fast conclusions therefrom. This may be done rather effectively by comparing the actual operating ratio with the operating ratio needed to cover fixed charges. These ratios are compared (for 25 large roads) in Table 1. Other things being at all equal, the greater the difference between these ratios, the greater the indicated ability to cover fixed charges in a period of adversity.

Recent Earnings Not Alarming

That the above facts and figures are not merely theoretical but have practical meaning is suggested by Class I railroad earnings for June, 1949, which by most people were considered highly unfavorable. Although operating revenues were over 12 per cent lower than in June, 1948, and although maintenance charges were increased by a large number of railroads in anticipation of the 40-hour week effective September 1, 1949, pre-federal income tax balance for charges was about \$110 million compared with fixed charges of about \$38 million, a coverage of almost three times. In the first half year fixed charges were covered about twice. For the full year 1949 fixed charges of Class I roads will probably be covered 2¾ times.

Fixed Charges Well Covered

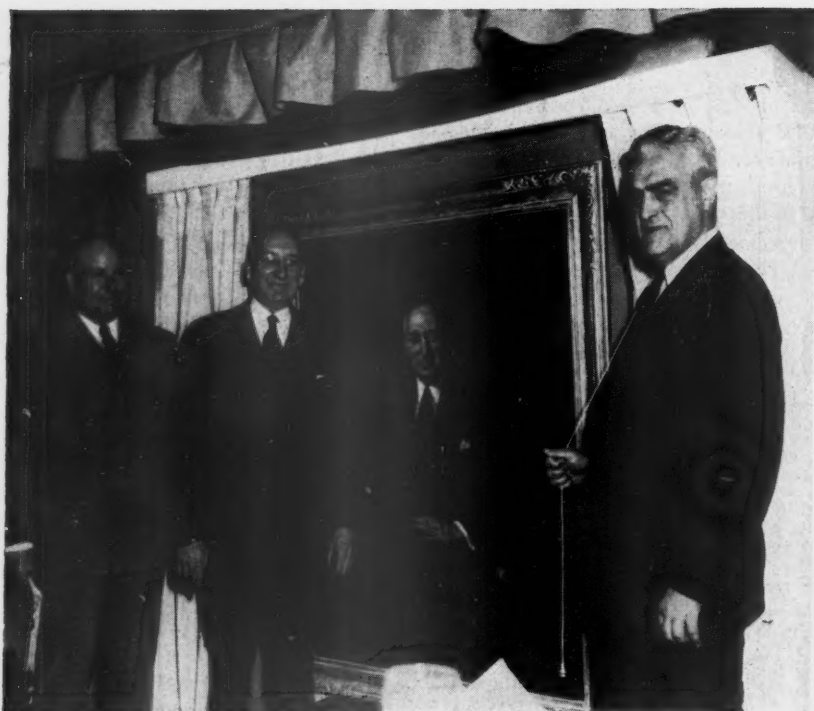
In this connection, it is pertinent to note that of 52 large railroad companies 42 earned sufficient net operating income in the first half of 1949 to cover the full year's fixed charges, assuming 1949 non-operating income about the same as in 1948 and normal miscellaneous deductions. Of the 10 that didn't, 5 have a high seasonal factor and earn much more in the second than the first half year.

CLASS I RAILROAD EARNINGS

	First Six Months 1949	1948
Operating Revenues	\$4,369	\$4,607
Maintenance Expenditures	1,500	1,475
Transportation Expenses	1,757	1,880
Other Expenses	298	294
Pre-tax Net Operating Income	444	583
Other Income	104	112
Pre-tax Balance for Charges	528	661
Fixed Charges	206	211
Contingent Charges	18	19
Pre-tax Net Income	304	430
Federal Income Tax	131	172
Net Income	173	258
Dividend Appropriations	125	113
Net Income Retained	48	145

† Estimated in part.

June, 1949, net income of \$43 million was very much lower than June, 1948, net income of \$94 million. But June, 1948, net income was probably the highest ever reported for June. And June, 1949, net income was higher than the average annual net income of \$40 million for the years 1931-1940.



Mr. Budd standing beside the portrait of himself, which had just been unveiled by John D. Farrington (right), president of the C.R.I. & P. H. C. Murphy, newly elected president of the Burlington, succeeding Mr. Budd, looks on at the left

"BOUQUETS" FOR As he bows out



Above (left)—With words focused more on the future than on the past, Mr. Budd graciously responded to the felicitations extended him at the testimonial dinner. Left in the picture is William T. Faricy, president of the A.A.R., who presided. Above (right)—At the speaker's table at the testimonial dinner were (left to right) Mr. Farrington; Ralph Budd; Mr. Faricy; Martin H. Kennelly, mayor of Chicago; Fred G. Gurley, president, A.T. & S.F.; Robert W. Budd, president, Great Lakes Greyhound Corporation; Gen. Charles G. Dawes, former vice-president of the United States; and Maj. Lenox R. Lohr, president of the Railroad Fair



TS" FOR RALPH BUDD

owsout on the Burlington

A report of the events pictured here, marking "Ralph Budd Day" at the Railroad Fair at Chicago, August 31, including a testimonial dinner on the fairgrounds, appeared in *Railway Age* last week, as did a sketch of Mr. Budd's career



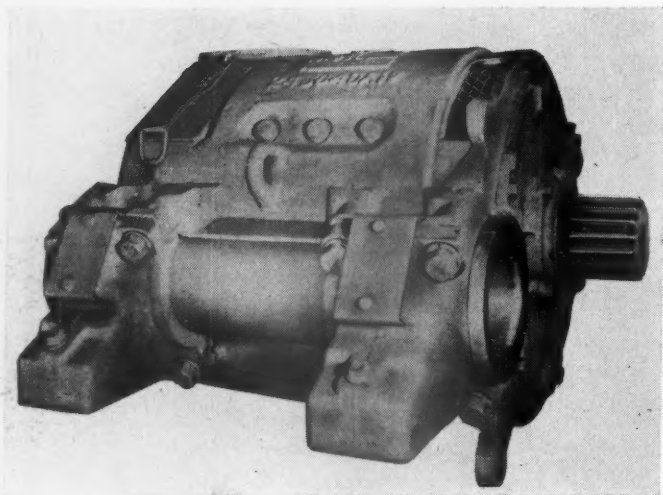
At the 9:00 o'clock performance of the pageant "Wheels A-Rolling," Mr. Budd arrived aboard the streamlined "Pioneer Zephyr" in reenactment of his arrival aboard the same train (on its maiden run from Denver, Colo.), at the Century of Progress 15 years before. Here he was greeted by General Dawes (left), and Major Lohr (center), who as director and general manager, respectively, of the Century of Progress, had greeted him on the earlier occasion



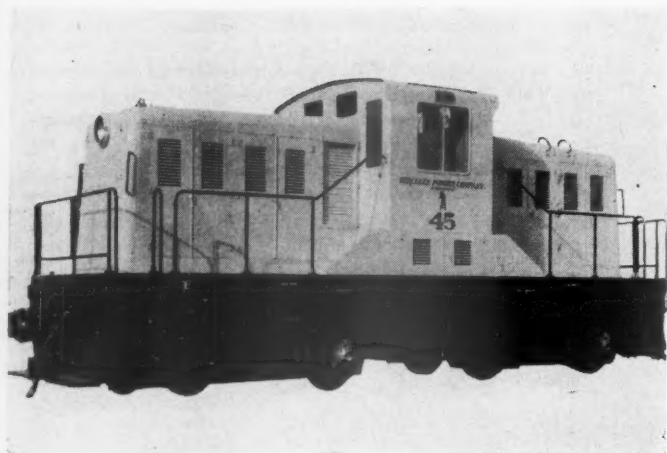
Approaching the center of the stage at "Wheels A-Rolling" for the final act of "Ralph Budd Day" are (right to left) Maj. Lenox R. Lohr, Gen. Charles G. Dawes, Mr. Budd, Mr. Faricy, and Mr. Budd's two sons, Robert W. Budd and John M. Budd



Above (left)—Standing before an audience of approximately 5,000, including the 500 special "Ralph Budd Day" guests, Mr. Faricy presented to Mr. Budd an A.A.R. citation in tribute to his outstanding contributions to the railroad industry. Above (right)—Hale and hearty at 70, Mr. Budd, with Maj. Lohr and Gen. Dawes, leaves the fairgrounds, ready to take up on September 1 his new position as chairman of the Chicago Transit Authority



Axle-hung traction motor for 65- and 80-ton Diesel-electric locomotive



A 65-ton, 500-hp. industrial switching locomotive with four traction motors



A 50-ton 300-hp. industrial switching locomotive with two traction motors

WHY INDUSTRIAL

By **THOMAS J. WOODS**
Westinghouse Electric Corporation

Industrial switching locomotives usually range in size from 20 to about 80 tons on drivers. In a few large industrial plants, however, such as some steel mills, 120-ton locomotives, commonly employed in railway switching, are required to handle the heavier loads encountered. For the great majority of industrial applications, units of less than 80 tons' weight are entirely adequate.

From the extensive experience gained in this country and abroad, there has evolved a line of standard Diesel-electric units suitable for industrial work. These are classified by weight on drivers. The most common types are the 25-, 35-, 44-, 50-, 65- and 80-ton locomotives. There is a sufficient degree of flexibility in design of these locomotives to permit builders to supply locomotives with characteristics to meet special operating requirements of users. And these special requirements are many. Both in this country and abroad, gages other than standard are frequently encountered; also, unusual width and height limitations are often imposed.

With the many types of engines and electrical apparatus available, the locomotive builders have been able to supply industrial users with the required locomotive size and characteristics.

With the variety of industrial locomotives available, it is interesting that locomotives of about 50 tons have proved most universally acceptable for plant switching. The following table lists according to weight on drivers the percentage of industrial type locomotives under 80 tons weight sold through December 31, 1948.

Weight on Drivers Tons	Per cent of Total Sales
Below 20	3
21 to 30	10
31 to 40	3
41 to 50	49
51 to 60	3
61 to 70	24
71 to 80	8

Engine Generator Sets

The builders of industrial locomotives do not manufacture Diesel engines but purchase recognized makes for locomotive installation. These range in speed from 1,000 r.p.m. to 2,100 r.p.m., and in horsepower from 100 to 600. In recent years, as engine design and reliability have improved, the trend has been toward higher speeds. A number of 2,100-r.p.m. engines of

This article is an abstract of a paper presented at the summer general meeting of the American Institute of Electrical Engineers at Swampscott, Mass.

PLANTS PREFER DIESELS

An outline suggesting how the several available types of Diesel-electric locomotives can most effectively be used to meet the switching needs of industrial plants

250 to 300 hp. have been in service for several years with excellent operating results. In engines of 600 hp. capacity, operating speeds of 1,000 to 1,200 r.p.m. are not normally exceeded.

A single-bearing traction generator is recognized as the most acceptable for locomotive service. Coupling details vary. Many types of generators utilize a solid coupling between the armature and the crankshaft while on others a steel disk flexible coupling is used with the generator frame bolted to the engine through a machine-fit bell housing. Either method of mounting results in a compact unit free from distortion due to locomotive movement.

Comparative Performance

Two types of traction motors are available for locomotive use—the heavy, slow speed type with the integral axle bearing using a single-reduction gear, and the lightweight high-speed type utilizing multiple reduction gearing. Careful analysis of service requirements will indicate which is better suited for a particular service. The slow-speed motor has a maximum speed of 2,000 r.p.m. as compared to 4,500 r.p.m., for the high-speed motor. The following tabulation indicates the principal characteristics of each when geared for the same continuous tractive force.

Motor type	Slow speed	High speed
Weight (lb.)	4,200	1,425
Rated tractive force (lb.)	5,500	5,500
Gear ratio	4.4:1	22:1
Maximum locomotive speed (m.p.h.)	50	20

It is evident that the high-speed motor may be geared for the same continuous tractive force as the heavier slow-speed motor. This is done at a sacrifice in maximum locomotive speed. Under the stated conditions a locomotive using the large low-speed motor is permitted a maximum speed of 50 m.p.h., while the smaller high-speed motor limits the maximum speed of the locomotive to 20 m.p.h. For industrial plants, where the locomotive is restricted to slow-speed operation, the smaller motor is well suited. This motor has less thermal capacity than the heavy motor which results in a lower short-time rating. By proper consideration of axle loading and service requirements, it is possible to use the lightweight motor on locomotives requiring 25 to 35 m.p.h. maximum speed.

One of the principal reasons the Diesel-electric is supplanting the steam locomotive in industrial switching is its superior operating characteristics.

Comparison of Operating Costs of
Steam and Diesel-Electric Locomotives
In a Typical Steam Plant

	Dollars per hour Present steam	Dollars per hour 50-ton Diesel
Fuel	\$ 0.698	\$ 0.330
Lubricants	0.045	0.033
Water	0.032	...
Supplies	0.073	0.040
Repairs	1.272	0.350
Total	\$ 2.120	\$ 0.753
Hours per year	13,660	13,660
Annual operating expense	\$ 28,959	\$ 10,286
Annual operating savings by use of Diesels	...	\$ 18,673

The operating cycle of a locomotive in switching service is short. It consists of accelerating from standstill up to approximately 10 m.p.h., then braking to a complete stop. The next operation may be in the reverse direction. As the time element is important, it is essential that the locomotive have the ability to respond quickly to throttle manipulation and develop high tractive force at low speeds to produce a high rate of acceleration. With an electrical control system, the Diesel responds to control manipulation faster than a steam engine of comparable size. The steam engine has a pulsating torque characteristic while the torque at the driving wheels of the Diesel-electric is smooth. It has been found that the steam engine cannot be operated in excess of about 25 per cent adhesion while the Diesel locomotive has a starting tractive force based on 30 per cent adhesion. Thus, with the same weight on drivers, the Diesel has a starting tractive force 20 per cent greater than the steam engine resulting in a higher rate of acceleration so necessary for switching service. The accelerating rate of the steam engine is further reduced by the non-adhesive weight carried on the tender and idle axles of the locomotive.

The Diesel locomotive, with electric drive, is particularly well suited for short heavy grade operation often encountered in industrial plants. These grades may be in the form of ramps and may be quite steep. With the inherent ability of the electrical equipment to withstand heavy overloads for short periods of time, the Diesel locomotive may be worked up the short grade at tractive force values approaching the slipping point of the wheels, and for the reasons before mentioned would excel a reciprocating steam locomotive of equivalent horsepower rating.

Most industrial plants do not require all locomotives to operate 24 hours a day. During the off period, the

Diesel locomotive may be shut down and housed for the night. With the steam engine, there is the ever-present problem of maintaining fires. This may require additional personnel for the sole purpose of keeping the locomotives fired, thus adding to the cost of maintaining the transportation system.

Economies of Diesel Power

Higher economy and greater availability of the Diesel are the principal factors sounding the "death knell" for the steam switching locomotive. Smoke control ordinances of many communities merely increase the preference for Diesel-electrics. Although some progress is being made in reducing smoke from steam locomotives by using over-fire air jets and controlled combustion, it is unlikely that the steam locomotive will ever be as clean as a Diesel.

In these days of increasing costs, efficiency is becoming increasingly important as premiums are set on economy of operation. From the standpoint of efficiency, the Diesel switching locomotive is unexcelled. In most instances a considerable saving in operating expense results from the substitution of Diesel power. A careful analysis of a switching service will indicate whether it is advisable to replace existing steam power with Diesels. The decision to substitute Diesels for existing steam motive power usually depends on the number of hours the Diesel may be used. The modern Diesel locomotive has an availability of about 90 per cent, and it is desirable that it be utilized to the fullest extent to realize the greatest savings. For example, in a small plant requiring only eight hours of switching per day, it may be impossible to realize a sufficient saving in operating cost to justify the large expenditure for a Diesel locomotive. In general, it may be said that a Diesel will justify its purchase price if it can be used a minimum of 10 to 14 hours per day.

The elements of operating expense in which a Diesel shows the greatest savings are fuel and repairs. With present prices of coal and Diesel fuel, the Diesel-electric locomotive can do the same amount of switching work as a steam locomotive with 25 to 50 per cent of the fuel cost. There is a fixed relation between the coal burned in a steam engine and the fuel oil used in a Diesel for a particular service. In switching service, this ratio is 100 to 140 lb. of coal to one gallon of Diesel fuel. This variation is due to the difference in types of switching service, which is ascertainable by observation. The selling price of fuel oil and coal in a particular locality will cause further variation in relative fuel costs.

Repair and Maintenance

Data obtained from various operating companies indicate that Diesel repairs average 30 to 50 per cent of comparable steam repair costs. A general figure for Diesel repair expense cannot be established for a particular size Diesel, particularly in industrial plant switching. The repair expense has been found to vary greatly, depending on local conditions. With relatively few locomotives in service, for example, maintenance personnel must be retained even though not needed at all times. This results in a high repair ex-

pense chargeable to the locomotives. On the other hand, if there are a relatively large number of locomotives on the property, by proper scheduling the unit repair expense will be low. It has been established, however, that on a particular property, there will be a definite relationship between maintenance costs for steam and Diesel locomotives. If the steam repair costs are low due to efficient maintenance, then the Diesel repair costs likewise will be low when Diesel substitution is made.

Taking these factors into consideration, it is possible to estimate with a considerable degree of accuracy the economic justification of Diesel motive power.

To illustrate what may be accomplished by the substitution of Diesels, the results of a recent steel mill application study are tabulated. The mill has five steam locomotives in operation handling intra-plant switching, and consideration is being given to the replacement of these units with Diesels. An analysis indicates that four 50-ton Diesel-electric locomotives can replace existing steam power and that the resulting savings will pay for the Diesels in five to seven years. Each Diesel locomotive will average 3,415 hours of operation per year and the annual savings in operating expense will approximate \$18,673.

Conclusions

The position of the Diesel-electric locomotive in the industrial switching field is unchallenged as evidenced by the large number in service and the rapid rate at which existing steam power is being replaced. The versatility of this form of power is well suited for the many applications encountered ranging from heavy steel mill work to light switching in small industrial plants.

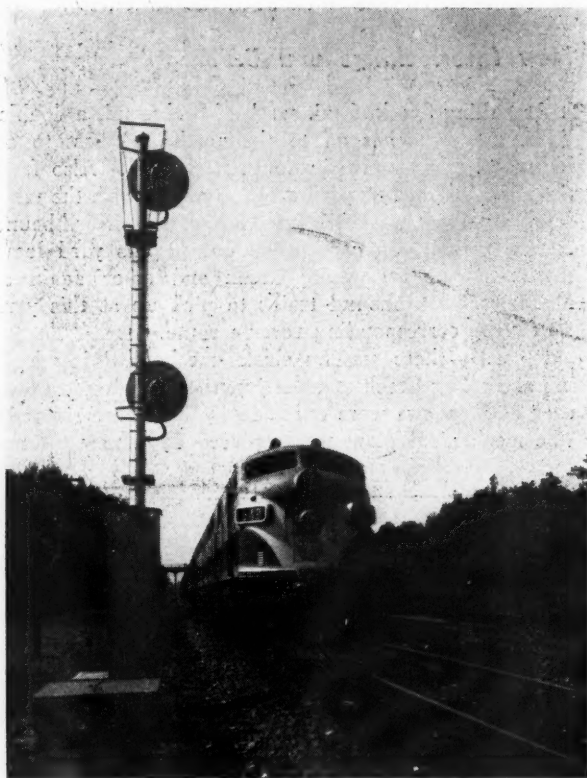
The operating advantages and economies possible with Diesel locomotives are obtainable by precision maintenance and repair. A Diesel-electric locomotive is composed of many elements requiring trained personnel for its proper upkeep and for realizing the high availability and low operating cost inherent in this type of motive power. A Diesel locomotive functions best when properly maintained. By observing the necessary precautions with regard to operation, following recommended maintenance procedures, and keeping the locomotive equipment clean, the industrial user will achieve an economy of operation hitherto unattainable with reciprocating steam motive power.

Truck operators say . . . they pay many fees and taxes for the privilege of using the highways. It appears they don't pay enough. They are getting a right-of-way for their own gain at a pretty low cost. They pay no taxes on that right-of-way as do railroads, nor are they directly concerned with its maintenance. The states and federal government do that. . . . Sound public policy hardly dictates a continued subsidization of the trucking industry through a minimum of taxes while taxpayers are pouring millions of dollars into better roads only to see them pounded to pieces under the wheels of the lumbering giants of the highway.

—Parsons, Kan., Sun

A. C. L. Installs New Signal System On Entire 121-Mi. District

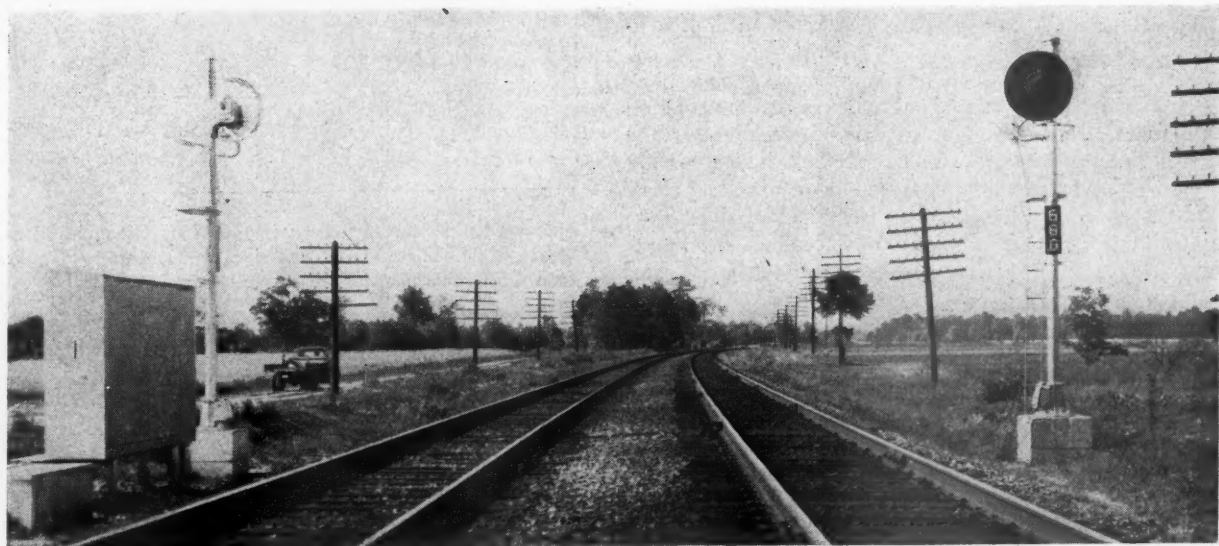
Train operation improved and maintenance reduced by consolidating interlockings into C.T.C. and replacing semaphores with searchlight signals



On an entire engine district of 121 mi. of double track between Richmond, Va., and Rocky Mount, N. C., the Atlantic Coast Line has installed completely new automatic block signaling and interlockings throughout. Old semaphore signaling, controlled by polar d.c. track circuits, has been replaced by modern searchlight signals controlled by coded track circuits. The new signaling includes electric locks on all main-track hand-throw switches and crossovers. Old electro-mechanical interlockings have been removed and replaced with new electro-pneumatic or electric plants, some of which are remotely controlled in centralized traffic control territories. Automatic grade-crossing signal installations were improved or replaced as part of the improvements.

As in the previous semaphore automatic block signaling, the new light-signal system includes intermittent inductive train stop, in which a wayside inductor is located 90 ft. in approach to each signal. In this system the brakes are applied automatically if a locomotive passes a signal displaying a restrictive aspect such as "red" or "yellow," providing the engineman does not acknowledge such an aspect by operating his acknowledgement lever.

Above (left)—Mechanical interlockings were replaced by power switch machines and signals. Below—Semaphores were replaced by searchlight signals controlled by coded track circuits



This territory between Richmond and Rock Mount is the first engine district on the Atlantic Coast Line's 1,000-mi. through route between Richmond and important cities in Florida. The through schedules include 20 passenger trains. Seven additional passenger trains are operated in shuttle service on the 27 mi. between Richmond and Petersburg, Va. Approximately 20 freight trains are operated daily, so that there are from 40 to 50 trains daily.

Throughout this territory the railroad traverses the west edge of a coastal plain, with light grades. The maximum grade is 0.7 per cent for 1 mi. ascending between Battleboro and Rocky Mount. The curvature is light with relatively few curves. The maximum curvature is 4 deg. on one curve, on which the speed for passenger trains is limited to 50 m.p.h. Train speeds are restricted to 25 m.p.h. through two small towns, and to 15 m.p.h. through a third. The maximum authorized speeds are 85 m.p.h. for passenger trains and 60 m.p.h. for freights.

Increase Block Length

In the former semaphore automatic signaling, as originally installed in 1913 to 1916, the signals, which were of the three-aspect, upper-quadrant type, were spaced for blocks about one mile long. The new searchlight type automatic signals are spaced approximately two miles, which, according to road tests on this territory, is adequate for stopping distances of modern trains at speeds up to 100 m.p.h. for passenger trains and up to 70 m.p.h. for freight trains.

The new signals, both automatic and interlocking, display standard code aspects. On each distant signal in approach to a home interlocking signal there is a second "arm" which consists of a lamp unit with a green glass. The lamp in this unit is normally dark. However, if the home signal is cleared to display the medium-speed aspect for a diverging route over a medium-speed crossover or turnout, then the distant signal displays the Approach-Medium aspect, yellow-over-green. This use of the Approach-Medium aspect on a distant signal, as compared with an Approach aspect, gives enginemen advance information so that they can bring trains up to and through a turnout at the speed for which it was designed, rather than approaching at reduced speed prepared to stop.

In a few instances, due to local circumstances, the block lengths are less than maximum train-stopping distances. In each such instance, the signal for the block in approach to the short block has a second "arm" which is a single lamp unit with a yellow glass. The lamp in this unit is normally dark, but if the short block, i.e., the second one ahead, is occupied, the aspect

displayed is yellow-over-yellow, Advance Approach aspect, Rule 282A.

In interlockings, the dwarf signals on routes leading to main tracks can be controlled to display a flashing-yellow aspect when one block which is unoccupied, thus authorizing a train to proceed preparing to stop at next signal, as compared with 15 m.p.h. maximum permitted by a steady yellow aspect.

At each hand-throw main-track switch for a turnout, the old hand-throw stand was replaced by a manually-operated switch and lock mechanism, each equipped with an electric lock, which locks the hand-throw lever when in the normal position. A pipe-connected derail at the clearance point on the turnout is removed from the track when the switch is thrown.

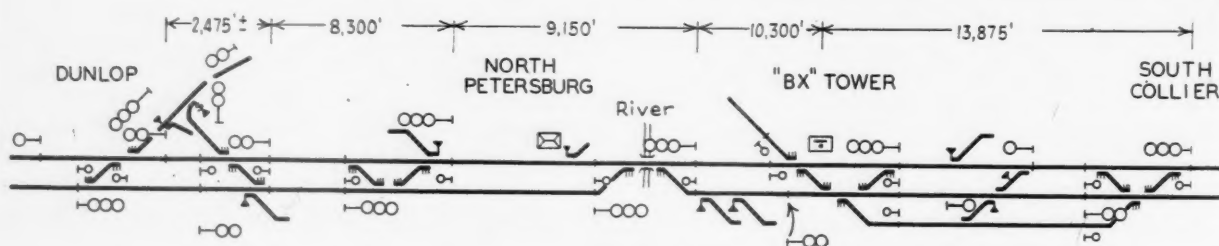
New Interlockings and C.T.C.

At Falling Creek, 6 mi. south of Richmond, a double-track line branches off to the north and east to an industrial freight yard in South Richmond. Also from the north end of this yard a line connects with the main track at Meadows, 1 mi. from Richmond. Northbound freight trains with cars to set out in this yard leave the main line at Falling Creek and enter again at Meadows. Southbound trains to pick up at this yard follow the corresponding reverse route.

Formerly there was an electro-mechanical interlocking at Falling Creek and the junction switch and crossover at Meadows were operated by hand-throw stands. The mechanical plant was replaced by a new electro-



Above—Map of territory between Richmond, Va., and Rocky Mount, N. C. Below—Track and signal plan of area controlled from C.T.C. machine in "BX" tower



pneumatic interlocking controlled by all-relay circuits and a C.T.C. type machine. This interlocking includes home signals at the switch at the south end of the siding, this switch being equipped with a spring switch mechanism. At the junction at Meadows, electro-pneumatic switch machines and associated home signals were installed to form an interlocking which is controlled remotely from the machine in the tower at Falling Creek.

The original main line passed through the city of Petersburg, 27 mi. south of Richmond. In later years, a belt line, now used by all main-line trains, was constructed west of the city, connecting with the old main line at Dunlop, 4 mi. north of Petersburg, and at "BX," 2 mi. south. Electro-mechanical interlockings were in service at Dunlop and at "BX," between which there was a single-track on the belt line. As part of the improvements during the last few years, second main track was added between Dunlop and "BX," with the exception of single track on the bridge over the Appomattox river. A new passenger station was built at North Petersburg, near River Road crossing. To increase the flexibility of train movements in the vicinity of this station, a pair of power-operated crossovers was installed about 2,500 ft. north of the station.

The new centralized traffic control, with the control machine in a tower at "BX," includes the entire territory from Dunlop through North Petersburg and "BX," to South Collier, about 10 mi. This C.T.C. includes power switches and signals to replace the old electro-mechanical plant at Dunlop; and to power-operate the

crossover and wye switch south of Dunlop, two new crossovers at North Petersburg, the end-of-double track switches at both ends of the bridge, all the switches at "BX," and the siding switch and two crossovers at South Collier which were formerly hand thrown.

At Weldon, 88 mi. south of Richmond, there was formerly an electro-mechanical interlocking which included crossovers and switches at the north end of a siding and a small storage yard, as well as the switch at the south end of single track over the Roanoke River bridge—the switch at the north end being power operated and controlled remotely from the Weldon tower. The improvements included the installation of two crossovers at Garysburg, 3 mi. north of Weldon. New interlocking power switches and signals were installed at the new crossovers at Garysburg, at both switches at the ends of the bridge, and throughout Weldon to replace the old electro-mechanical plant, as well as at South Weldon to operate the crossover and switches which were formerly hand-thrown. All these facilities in the 4.5 mi. between Garysburg and South Weldon, inclusive, are now controlled by a panel-type C.T.C. machine in the tower at Weldon.

This new signaling was planned and installed by the signal forces of the Atlantic Coast Line, under the direction of J. S. Webb, chief engineer communication and signals. Construction work was carried out under the supervision of S. J. Davis, Jr., supervisor signal construction. The major items of signaling equipment were furnished by the Union Switch & Signal Co. and the insulated wires and cables by the Kerite Company.

New and Improved Products Of the Manufacturers

Safety step ladders in standard sizes ranging from one to six steps are made by the Ballymore Company, 3 South Roberts road, Bryn Mawr, Pa. These ladders are mounted



on ball bearing casters for easy movement, but the moment a person steps on the ladder the rubber tipped legs are said to come in contact with the floor, preventing rolling action and the possibility of a fall. The frame is of 3/4-in. steel tubing and the step plates of non-slip reinforced expanded steel

This is a new type of self-contained hydraulic crane scale. Loads are transmitted by an Emery cell to a precision type Bourdon tube, the deflection of which moves the pointer on the dial. Crane scales are available with 13 scale ranges from 0-1,000 lb. to 0-30,000 lb. from the Baldwin Locomotive Works, Testing Equipment Department, Philadelphia 42, Pa. (RIGHT)



GENERAL NEWS

Sees Train-Limit Laws No Longer Justified

Emergency board expresses that view in report on S.P. case

"Whatever may have been the merit of train-limitation laws passed by the various states at the time, they can no longer be justified," according to the report of an emergency board which investigated a dispute between the Southern Pacific and its Pacific Lines' employees who are represented by the Brotherhood of Railroad Trainmen. The dispute involves the union's demands for inclusion in its system agreements of "full crew" provisions, the demands having been made as a result of the repeal last year of California's former "full crew" law.

The demands, however, are "much wider in extent than the changes effected by the carrier following repeal, and to a considerable extent follow the pattern of demands made by the union in previous national movements," the emergency board said. Its recommendations was that the demands be made more specific as to location and assignments; and that negotiations of the parties be resumed with a view to considering each case on its merits for inclusion in local agreements.

As to the demands for extra brakemen

in road service, the board said: "Only thoroughly experienced operating men can pass judgment on the actual advantages of the use of a third brakeman. It requires specific consideration of each assignment, including very many factors of which the number of cars in a train is one of the less significant. It follows, therefore that the subject will not lend itself to a systemwide rule, but rather that local agreements covering specific operations where a third brakeman is justified should be negotiated." The board reached like conclusions as to the demands with respect to yard and other switching services.

"Would Result in Featherbedding"

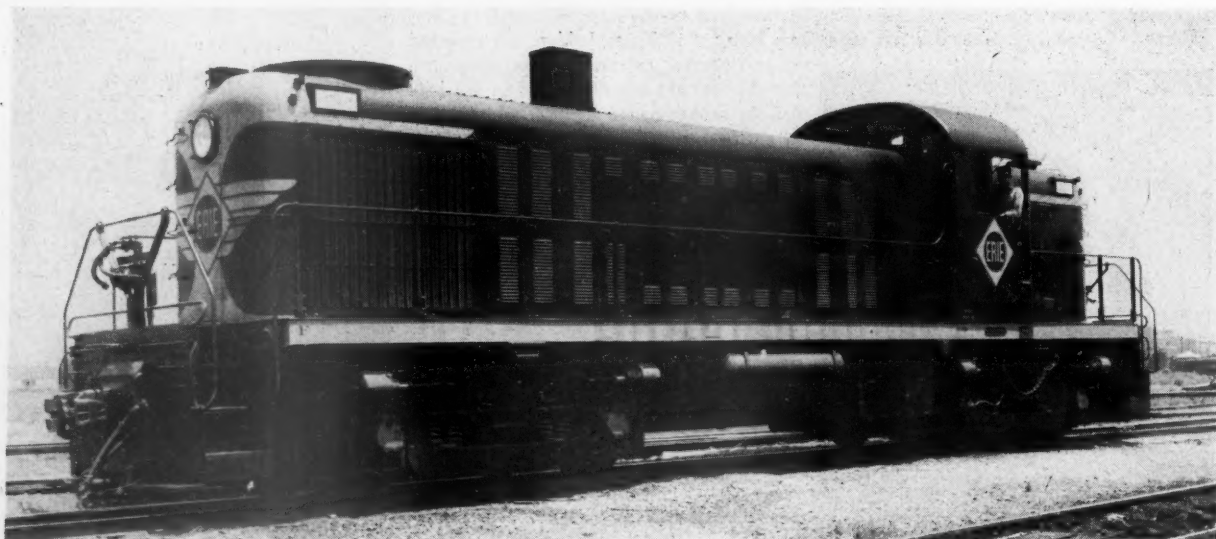
"The [road-service] demand, as made by the union," the report also said, "would undoubtedly result in considerable feather-bedding, that is, the employment of unneeded brakemen. This is because the demand is on a systemwide basis and adopts rigid standards for application, based on arbitrary conditions, such as where the train carries 40 cars, or more, without regard to the necessity for a third brakeman. There are many through trains operated on the system, carrying 90 cars or more, which run through from terminal to terminal without a stop, and where there would be nothing whatever for the third brakeman to do; except perhaps in the very infrequent case of a break-in-two or derailment. And even in those situations, in

protected territory he would not be necessary, although he could help. The same may be true of other trains operating in double track or in centralized traffic control territory. On the other hand, there probably are some through freight trains where there would be ample justification for a third brakeman."

The board's comment on train-limitation legislation, which was quoted above, came in the report after a reference to S.P. contentions that the union's demands were "quite similar to the national pattern which has been followed . . . for years, in an attempt to procure legislation by Congress and the several states." To its assertion that such legislation "can no longer be justified," the board added this: "Trains of seventy cars are now commonplace. Indeed, many trains with two-brakemen crews are now operated with as many as 150 cars with entire safety and efficiency."

The board also pointed out that California still has in effect legislation which authorizes its Public Utilities Commission "to make regulations concerning the consist of train crews necessary in the promotion of safety with the proviso that feather-bedding will not result." The commission is now investigating the matter; and the board anticipated that the investigation would produce "appropriate results" so far as the union's demands are "predicated on safety."

Demands like those served on the S.P. were also served on the Atchison, Topeka



One of seven 1,500-hp. Diesel-electric road-switching locomotives which will go into service within the next few months to handle 49 commuter trains daily between Jersey City, N. J., and suburban points on the Erie's New York division. The Erie also anticipates near future delivery of five 2,000-hp. units for use in local passenger service between Jersey City and Port Jervis, N. Y.

& Santa Fe, the Western Pacific, and the Union Pacific, the report also noted. It went on to say that the U.P., being affected "in but a very small way," settled the matter by an agreement with the union under which two-man crews receive arbitrary additional mileage. The board understood that the Santa Fe, W.P. and the union were "awaiting the outcome of this proceeding." Members of the board were Chairman Frank M. Swacker, Robert G. Simmons, and Leverett Edwards. They made their report to the President on September 7. Appointment of board resulted in postponement of a strike which the union had called for July 22.

Train Service Unions Set to Strike on M. P.

Walkout was expected as this issue went to press

As this issue went to press, the four train and engine service brotherhoods were expected to carry out their plans for a strike on the Missouri Pacific, effective at 2:00 p.m., September 9. F. P. Douglass, a member of the National Mediation Board, said in Washington, D. C., on September 7 that the board had failed to persuade the union leaders to submit the controversy to arbitration or some other settlement procedure.

The controversy involves some 300 unadjusted grievance claims which are within the jurisdiction of the National Railroad Adjustment Board. The strike was originally set for July 11, but was postponed when President Truman appointed an emergency board to hear the case. The emergency board reported "failure of our mission," because it had been unable to persuade the unions to accept its offer of mediation, or to submit the grievances to the Adjustment Board or to arbitration (see *Railway Age* of August 13, page 75).

Unions Reject Arbitration

Meanwhile, the M.P. management expressed its willingness to abide by any decision the adjustment board might make; and it has suggested arbitration and other settlement procedures. All such proposals have been rejected by the unions which are the Brotherhood of Locomotive Engineers, Brotherhood of Railroad Trainmen, Brotherhood of Locomotive Firemen & Enginemen, and Order of Railway Conductors.

"I think they're all set to have a strike," N.M.B. Member Douglass said in appraising the situation on the afternoon of September 7. He added: "We've done everything we can under the law, and then some, trying to stop it and had no success. We've given up entirely now and it looks like a strike." Judge Douglass also said, however, that N.M.B. was still "standing by," ready to assist the

parties in setting up any settlement procedures on which they might agree.

N.M.B.'s pessimism resulted from telephone conversations its members had this week with the union leaders who had returned to their headquarters after attending meetings which the board held with the parties in Washington last week. After the break-up of those meetings, P. J. Neff, chief executive officer for the M.P. trustee, issued a September 5 statement saying that the walkout would be "one of the most unjustifiable strikes in American railroad history." He added that it had been called because his road would not agree "to terms dictated by the four train service brotherhoods" for settlement of the grievances. Mr. Neff also said that he had stated again to N.M.B., at last week's meetings, the road's position that it would "arbitrate or otherwise comply with the recommendations of the President's emergency board"; but the union leaders "absolutely refused to do this."

The first embargo issued in anticipation of the strike became effective at 12:01 a.m., September 7. It applied against all carload or l.c.l. freight to or via points on the M.P. A second embargo, issued to become effective at 12:01 a.m., September 9, applied to passengers, mail, baggage and express. Meanwhile, Homer C. King, director of the Interstate Commerce Commission's Bureau of Service issued King's I.C.C. Order No. 3 under Revised Service Order No. 562. Effective from 12:01 a.m., September 7, it authorized the M.P. and its connections to divert traffic routed via the M.P. over any available open route to expedite the movement. The order and embargoes did not apply to the Gulf Coast Lines, International-Great Northern, or Missouri-Illinois, constituents of the M.P. system, which were not involved in the strike call Mr. Neff explained, however, that the strike would cause discontinuance of through service operated by the M.P. in connection with those lines.

New Haven Proposes 4-Point Plan for Old Colony Service

Eighty-five percent of the passenger train service instituted on the former Old Colony on March 1 last will be operated after September 25 by the New York, New Haven & Hartford on a conditional trial basis, continuation of which will depend upon the success of a new 4-point plan proposed by the railroad, Laurence F. Whittemore, president of the New Haven, announced on September 7.

Under the plan all communities which had service on March 1 last will have passenger train service this winter, with the exception of the Fall River branch, on which passenger service will cease. The New Haven is negotiating with the Post Office Department and the Railway Express Agency to arrange service by highway for the mail and express which four daily trains, with from eight to 25 passengers each, have been carrying to and from Fall River.

The plan provides that the New Haven will continue passenger service between Boston and Braintree, Greenbush, Plymouth, Hyannis and New Bedford. During the trial period, passenger service on the Woods Hole branch will be by buses of the New England Transportation Company with train connections being made at Buzzards Bay. The plan includes resumption of train service on the Woods Hole branch next summer.

Train schedules on the former Old Colony lines as of March 1 showed 44 trains operating Mondays to Saturdays inclusive. Under the 4-point plan schedules, to become effective September 25, there would be 36 trains Mondays to Fridays inclusive and 20 on Saturdays.

In announcing the plan, Mr. Whittemore said in part:

"In spite of the drastic action taken heretofore to reduce the admitted heavy losses in operation of passenger service on the former Old Colony lines, further immediate action is necessary. . . . If we can get the necessary assistance from the brotherhoods . . . and from the residents of the communities involved, the officers of the New Haven believe there is still a fighting chance of maintaining passenger service.

Details of Plan

"The plan we propose is entirely aside from the still-unanswered question of what we must do regarding occupancy of the South station. That is an even more complicated situation now, as our plans for continued operation in and out of South station were based on the expectancy of the Commonwealth [of Massachusetts] purchasing the station. . . ."

[The proposed purchase of the South station in Boston by the state of Massachusetts, reported in the *Railway Age* of July 16, page 65, has been rejected by the state legislature.]

The 4-point plan, which the New Haven will try out during the coming winter, with close study being made of results and patronage of each individual train, is as follows:

1. Elimination on September 25 of such lightly patronized trains, especially on Saturdays, as give no indication of ever again attracting enough additional patronage to bring them back to the point where they would meet their out-of-pocket operating costs.

2. Request of New Haven employees, through their brotherhoods, to work "split tricks" in the former Old Colony areas.

3. Immediate petition to the Public Utilities Commission for an increase in commutation fares, to bring them up to about the levels of the rates now being paid by those who use a combination of bus and transit service to travel to and from Boston.

4. Formation of local citizens commuter committees in each community, which would work towards better general understanding of the situation; toward securing more patronage for the trains, and to emphasize in each community the fact that if the 4-point plan fails the alternative is complete elimination of passenger train service in the area. The New Haven will conduct an extensive advertising campaign in newspapers and by radio and

other means, to aid each community committee.

"The easy way out," Mr. Whittemore continued, "would be to abolish all passenger train service on the former Old Colony lines. We have the legal right to do this forthwith. Those concerned with the problems of the New Haven are agreed, however, that we should not avail ourselves of that right until we have exhausted every possible effort to bring commuting service on the former Old Colony lines back to where it will meet its out-of-pocket operating costs. Our belief that this 4-point plan may, if everyone concerned cooperates, solve the immediate problem of continuing passenger train operation, is based on the success of our summertime service to and from Cape Cod during the season just ending."

Freight Car Loadings

Carloadings for the week ended September 3 were not available when this issue went to press.

Loadings of revenue freight for the week ended August 27 totaled 746,912 cars, and the summary for that week as compiled by the Car Service Division, Association of American Railroads, follows:

REVENUE FREIGHT CAR LOADINGS			
For the week ended Saturday, August 27			
District	1949	1948	1947
Eastern	132,804	154,338	164,445
Allegheny	141,293	183,162	195,820
Pecahontas	48,524	74,204	73,436
Southern	109,805	131,678	131,703
Northwestern	134,256	144,665	148,443
Central Western	118,915	135,144	144,709
Southwestern	61,315	68,475	67,156
Total Western Districts	314,486	348,284	360,308
Total All Roads	746,912	891,666	925,712
Commodities:			
Grain and grain products	50,650	52,538	57,439
Livestock	11,483	11,290	12,552
Coal	120,724	184,126	180,091
Coke	10,029	14,862	14,038
Forest products	49,969	53,437	50,281
Ore	64,509	75,452	81,499
Merchandise L. & I.	92,637	106,206	119,182
Miscellaneous	355,911	393,755	410,630
August 27	746,912	891,666	925,712
August 20	731,215	900,663	900,895
August 13	728,029	891,276	906,305
August 6	716,824	878,647	905,244
July 30	723,810	894,375	921,591
Cumulative total 34 weeks	24,420,707	27,813,446	28,817,900

In Canada.—Carloadings for the week ended August 27 totaled 86,183 cars, compared with 79,171 cars for the previous week, and 84,995 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
August 27, 1949	86,183	30,519
August 28, 1948	84,995	33,742
Cumulative totals for Canada:		
August 27, 1949	2,478,521	1,049,388
August 28, 1948	2,557,350	1,172,845

Holds Fare Tax Applies On Tickets Bought in Canada

The 15 per cent tax on amounts paid for the transportation of passengers applies to the sending of funds outside the country for the purchase of tickets ordi-

narily subject to the tax, according to Commissioner of Internal Revenue George J. Schoeneman.

"This means," the commissioner said in a September 2 statement, "that the tax is due even if persons mail or telegraph or send cash, checks, money orders, or other funds to ticket offices, travel agents, etc., in other countries (such as Canada or Mexico) for such tickets, or if persons arrange with travel or transportation officers in this country for the furnishing of such tickets from a foreign address. The U. S. tax on transportation of persons applies to 'payments' made in the United States, and such actions as described above constitute 'payment' in this country."

Gross and Net for July And First Seven Months

The net railway operating income of \$363,480,730 and the estimated net income of \$200,000,000 which Class I railroads earned in this year's first seven months, as noted in the *Railway Age* of September 3, were derived from gross revenues of \$5,069,909,098. The July and 7-months comparisons of 1949 with 1948 are given in the accompanying table, which was part of the latest monthly statement issued by the Association of American Railroads. The statement also noted that 30 Class I roads failed to earn interest and rentals in the first seven months of 1949, of which 13 were in the Eastern district, 5 in the Southern region, and 12 in the Western district.

Class I roads in the Eastern district in July had an estimated net income of \$1,800,000 compared with \$28,000,000 in July, 1948. In the seven months, their estimated net income was \$78,000,000 compared with a net income of \$118,000,000 in the same period of 1948.

Their net railway operating income in July amounted to \$13,869,792 compared with \$42,889,224 in July, 1948. Those same roads in the seven months had a net railway operating income of \$170,938,334 compared with \$215,394,806 in the same period of 1948.

Gross in the Eastern district in the seven months totaled \$2,312,169,473, a decrease of 7.2 per cent compared with the same period of 1948, while operating expenses totaled \$1,888,950,955, a decrease of 5.5 per cent below 1948.

Class I roads in the Southern region in July had an estimated net income of \$1,400,000 compared with \$8,700,000 in July, 1948. In the seven months, their estimated net income was \$34,000,000 compared with a net income of \$55,000,000 in the same period of 1948.

Those same roads in July had a net railway operating income amounting to \$4,828,232 compared with \$11,908,975 in July, 1948. Their net railway operating income in the seven months amounted to \$58,836,615 compared with \$81,737,926 in the same period of 1948.

Gross in the Southern region in the seven months totaled \$699,952,535, a decrease of 8.8 per cent compared with the

same period of 1948, while operating expenses totaled \$564,646,178, a decrease of 5.1 per cent below 1948.

Class I roads in the Western district in July had an estimated net income of \$24,000,000 compared with \$40,000,000 in July, 1948. Their estimated net income in the seven months was \$88,000,000 compared with \$163,000,000 in the same period of 1948.

Their net railway operating income in July amounted to \$31,638,978 compared with \$50,458,609 in July, 1948. Those same roads in the seven months had a net railway operating income of \$133,705,781 compared with \$219,056,795 in the same period of 1948.

Gross in the Western district in the seven months totaled \$2,057,787,090, a decrease of 6 per cent compared with the same period of 1948, while operating expenses totaled \$1,671,501,026, a decrease of 0.6 per cent below 1948.

CLASS I RAILROADS—UNITED STATES			
	Month	of July	
		1949	1948
Total operating revenues		\$ 700,648,360	\$ 841,933,545
Total operating expenses		569,818,427	626,159,046
Operating ratio — per cent		81.33	74.37
Taxes		66,172,895	96,398,698
Net railway operating income (Earnings before charges)		50,337,002	105,256,808
Net income, after charges (estimated)		27,200,000	76,700,000
Seven Months Ended July 31, 1949			
Total operating revenues		\$5,069,090,098	\$5,448,712,802
Total operating expenses		4,125,098,159	4,275,076,138
Operating ratio — per cent		81.36	78.46
Taxes		486,884,968	557,600,751
Net railway operating income (Earnings before charges)		363,480,730	516,189,527
Net income, after charges (estimated)		200,000,000	336,000,000

Additional General News will be found on pages 88, 91, 92, 93, 94, 95 and 96

ORGANIZATIONS

Coordinated Associations and Electrical Sections Meetings

The 1949 annual meetings of the Coordinated Mechanical Associations—Air Brake, Car Department Officers, Fuel and Traveling Engineers, Locomotive Maintenance Officers and Master Boiler Makers—will be held at the Hotel Sherman, Chicago, for four days beginning Monday, September 19, through September 22. The meetings of the A.A.R. Electrical Section, Mechanical Division, will be held at Hotel La Salle, Chicago, September 19 to 21, inclusive, and the sessions of the A.A.R. Electrical Section, Engineering Division, will be held at the La Salle on September 22.

J. E. Goodwin, vice-president and exe-

cutive assistant to the president, Chicago & North Western, will address these associations in joint session on Monday morning, September 19, at the Hotel Sherman. His subject will be the 40-hr. week.

The programs of the individual associations appear below. Coincident with the meetings there will be an exhibit of mechanical products by the Allied Railway Supply Association at the Hotel Sherman.

Joint Sessions

(Hotel Sherman)

MONDAY, SEPTEMBER 19

10:30 a.m.

Address by J. E. Goodwin, vice-president and executive assistant to the president, C. & N. W.

TUESDAY, SEPTEMBER 20

Afternoon

Visit to exhibits

Master Boiler Makers' Association

(Hotel Sherman)

MONDAY, SEPTEMBER 19

2 p.m.

Address by President Edward H. Heide
Address by H. J. Burkley, superintendent of motive power, Baltimore & Ohio
Report—Topic No. 2: Recommended Practices for Staybolt Application and Maintenance, by Dr. G. R. Greenslade, director of research, Flannery Bolt Company

TUESDAY, SEPTEMBER 20

9 a.m.

Message by Secretary-Treasurer Albert F. Stiglmeier

Address by E. P. Gangewere, assistant general manager, Reading

Report—Topic No. 1: How Can the Master Boiler Maker Aid in Smoke Abatement and Fire Prevention, by E. H. Gilley, general boiler foreman, Grand Trunk Western

Report on Advantages of Steam Space Spray Boiler Checks or Top Boiler Checks vs. Side Boiler Checks, by K. D. Relyea, test department, New York Central System

WEDNESDAY, SEPTEMBER 21

9 a.m.

Report of the Executive Board
Report of the Secretary-Treasurer
Message by Edward H. Davidson, director, Bureau of Locomotive Inspection, I.C.C.

Report—Topic 3: Problems and Uses of Modern Boiler and Firebox Steel, Ray McBrien (chairman), engineer standards and research, Denver & Rio Grande Western

Report of Committee on Law

2 p.m.

Report of Committee on Memorials
Address by F. S. Hartle, assistant director of operations, Board of Transport Commissioners for Canada

Report—Topic 4: The Education and Training of Boiler Supervision, T. J. Lyon (chairman), superintendent of equipment, N.Y.C.
Election of officers

THURSDAY, SEPTEMBER 22

9 a.m.

Report of Committee on Resolutions
Message by D. E. Mumford, superintendent of safety, N.Y.C.

Report—Topic 5: Washing Boilers, Comparison of Hot Blow-Down vs. Cool-Down Method, H. R. Barclay (chairman), general boiler inspector, Northern Pacific

Railway Fuel and Traveling Engineers' Association

(Hotel Sherman)

MONDAY, SEPTEMBER 19

2 p.m.

Address by President G. B. Curtis
Address by E. M. Hastings, chief engineer, Richmond, Fredericksburg & Potomac
Paper: Education and Duties of Road Foreman of Engines, by F. P. Roesch

TUESDAY, SEPTEMBER 20

9 a.m.

In Joint Session with Air Brake Association
Address by L. K. Silcox, first vice-president, New York Air Brake Company

Report on Passenger Brake Handling and Cause of Rough Stops, by F. R. Browning, supervisor of locomotive operation, B. & O.
Report on Freight-Train Handling, by W. B. Weightman, general air-brake inspector, Pennsylvania
Report on Front Ends, Grates, Ashpans and

Arches, by S. R. Tilbury, fuel supervisor, Atchison, Topeka & Santa Fe
Secretary-Treasurer's report

WEDNESDAY, SEPTEMBER 21

9 a.m.

Report on Education of Engine Crews—Steam, by G. E. Anderson, general fuel supervisor, Great Northern

Report on Smoke Prevention on the Road and in Terminals, by M. G. Stewart, Washington Terminals

Report on Operation of Steam Generators on Diesels, by R. D. Nicholson, road foreman of engines, New York, New Haven & Hartford

2 p.m.

Report on Education of Engine Crews—Diesels, by F. Thomas, assistant to general superintendent equipment—Diesel and electric, N.Y.C.

Address: Petroleum and its Relation to Past and Future E. M. D. Locomotive Operations, by W. K. Simpson, fuel and lubricant engineer, Electro-Motive Division, General Motors Corporation

THURSDAY, SEPTEMBER 22

9 a.m.

Report on Unit Cost of Coal on Locomotives, by A. A. Raymond, superintendent fuel and locomotive performance, N.Y.C.

Address: Coal Sizing and Preparation, by C. W. Waterman, Jr., district manager, McNally Pittsburgh Manufacturing Corporation

Address: The Coal Operator and the Railroads, by J. E. Tobey, Appalachian Coals

Report on Economical Operation and Handling of Stokers, by D. C. Black, road foreman of equipment, St. Louis-San Francisco

Report on Oil-Burning Locomotives and What Economies Are To Be Obtained, by T. L. Henley, chief fuel supervisor, Missouri-Kansas-Texas

Locomotive Maintenance Officers' Association

(Hotel Sherman)

MONDAY, SEPTEMBER 19

2 p.m.

Address by President J. W. Hawthorne
Report of Committee on Terminal Facilities—Steam, C. E. Pond, (chairman), assistant to superintendent motive power, Norfolk & Western. Topic: Improving the Utilization of Steam Locomotives

Report of Committee on Terminal Facilities—Diesel, H. E. Niksch (chairman), master mechanic, Elgin, Joliet & Eastern. Topic: Modern Diesel Servicing Stations

TUESDAY, SEPTEMBER 20

9 a.m.

Address by A. K. Galloway, general superintendent

ent motive power and equipment, B. & O. Topic: Steam Locomotive Maintenance

Report of Committee on Steam Locomotive Shop Practices—General, F. B. Rykoskey (chairman), supervisor of shops, B. & O. Topic: Expediting System for Material and Tool Delivery in Roundhouse and Back Shop

Report of Committee on Shop Tools, C. R. Eisle (chairman), master mechanic, D. & R. G. W. Topic: Tooling for Reclamation of Steam and Diesel Locomotive Parts

WEDNESDAY, SEPTEMBER 21

9 a.m.

Report of Committee on Personnel Training—Steam, Jack Wolff (chairman), special representative, Chesapeake & Ohio. Topic: Improving Attitudes and Skills Through Improved Supervision

Report of Committee on Personnel Training—Diesel, Glenn E. Rodgers (chairman), supervisor of Diesel instruction car, A. T. & S. F. Topic: Introducing Steam Personnel to the Diesel Locomotive

2 p.m.

In joint session with Electrical Section, Mechanical Division, A.A.R.

Report of the Committee on Diesel Electrical, R. I. Fort (chairman), assistant research engineer, Illinois Central. Topics:

Report on Automotive Equipment, Electrical Section

Dynamic Braking, by J. P. Morris, assistant to vice-president (mechanical), A. T. & S. F.

Load Testing of Diesel Engines

Traction Motor Maintenance

Traction Motor and Main Generator Overhaul

THURSDAY, SEPTEMBER 22

9 a.m.

Report of the Committee on Diesel Mechanical—W. L. Huebner (chairman), supervisor of Diesel engines, A. T. & S. F. Topics:

Heavy Engine Overhaul

Winterization Program for Diesel Locomotives

Air Brake Association

(Hotel Sherman)

MONDAY, SEPTEMBER 19

2 p.m.

Report of Committee on Approved Maintenance Practice, C. E. Miller (chairman), superintendent air brakes and steam heating, N.Y.C. Subjects:

Shop Maintenance of Brake Valves

Shop Maintenance of Control and Feed Valves

Roundhouse Maintenance and Inspection of Feed Valves

TUESDAY, SEPTEMBER 20

9 a.m.

In Joint session with Railway Fuel and Traveling Engineers' Association



M. A. Metcalf, vice-president and executive assistant of the Canadian National, is appointed temporary sheriff by "Red" Morris, law enforcement officer of the "Wild West" town of Gold Gulch, mining town replica at the Railroad Fair in Chicago

Address by L. K. Silcox, first vice-president, New York Air Brake Company
 Report on Passenger Brake Handling and Cause of Rough Stops, by F. R. Browning, supervisor of locomotive operation, B. & O.
 Report on Freight-Train Handling, by W. B. Weightman, general air-brake inspector, Pennsylvania

WEDNESDAY, SEPTEMBER 21
 9 a.m.

Dynamic and Regenerative Braking—Freight and Passenger Trains, by D. R. Collins, superintendent air brakes, D. & R. G. W.

Wheel Slip and What Can Be Done About It—C. L. Eksbergian, executive engineer, Budd Company
 American Brake Shoe Anti-Wheel Slide Controller, by R. L. Wilson, assistant chief engineer, American Brake Shoe Company
 Evolution of the A. P. Decelostat System, by H. I. Trumble, air-brake engineer, Chicago, Burlington & Quincy

Control and Indication of High-Speed Passenger Brake Equipment, by C. M. Hines, electrical engineer, Westinghouse Air Brake Company

3 p.m.
 Elimination of Moisture in Diesel Locomotives, Manhattan Air Brake Club

THURSDAY, SEPTEMBER 22
 Brake Flow Indicator, by H. N. Sudduth, director of air-brake engineering, New York Air Brake Company

Car Department Officers' Association (Hotel Sherman)

MONDAY, SEPTEMBER 19
 2 p.m.

Address by President P. J. Hogan
 Report of Committee on Modern General Repair Shop Operation and Methods, H. A. Grothe (chairman), shop superintendent, Chicago, Milwaukee, St. Paul & Pacific

TUESDAY, SEPTEMBER 20
 9 a.m.

Address by J. F. Doolan, vice-president—operations, N. Y. N. H. & H.

Report of Committee on Loading Rules, J. Krupka (chairman), general car foreman, C. B. & Q.

Report of Committee on Interchange and Billing for Car Repairs, R. W. Hollon (chairman), mechanical inspector, C. B. & Q.

WEDNESDAY, SEPTEMBER 21
 9 a.m.

Address by J. J. Brinkworth, vice-president (operating), N.Y.C.

Report of Committee on Analysis of Train-Yard Operations to Improve Performance, G. J. Flanagan (chairman), general car inspector, N.Y.C.

2 p.m.
 Report of Committee on Responsibilities of Car Department Supervision, R. E. Ba9ker (chairman), assistant general manager (mechanical), Boston & Maine

Report of Committee on Air-Conditioning Equipment—Operations and Maintenance, C. S. Albright (chairman), supervisor electrical equipment, N.Y.C.

THURSDAY, SEPTEMBER 22
 9 a.m.

Report of Committee on Modern Methods of Freight-Car Painting, R. Middleton (chairman), painter foreman, New York, Chicago & St. Louis

Miscellaneous reports
 Election of officers

Association of American Railroads Electrical Section, Mechanical Division (Hotel La Salle)

MONDAY, SEPTEMBER 19
 10:30 a.m.

Joint session at Hotel Sherman
 Address by J. E. Goodwin, vice-president and executive assistant to the president, C. & N. W.

2 p.m.
 Committee of Direction meeting

TUESDAY, SEPTEMBER 20
 9 a.m.

Address by L. S. Billau (chairman), electrical engineer, Baltimore & Ohio

Welding and Cutting—L. E. Grant (chairman), engineer of tests, C. M. St. P. & P.

Motors and Control (Diesel facilities)—R. H. Herman (chairman), engineer of shops and equipment, Southern

Locomotive and Electrical Equipment—A. D. Whamond (chairman), foreman, office of electrical engineer, Pennsylvania

Application of Radio and Communication Systems to Rolling Stock—W. S. Heath (chairman), assistant electrical foreman, A. T. & S. F.

WEDNESDAY, SEPTEMBER 21
 9 a.m.

Car Electrical Equipment—S. B. Pennell (chairman), assistant engineer, N.Y.C.

Car Air Conditioning Equipment—K. T. Benninger (chairman), general electrical supervisor, Chicago & Eastern Illinois

2 p.m.
 (In joint session with the Locomotive Maintenance Officers' Association at the Hotel Sherman)
 Automotive and Electric Rolling Stock (Diesel)—R. I. Fort (chairman), assistant research engineer, I. C.

Electrical Section, Engineering Division (Hotel La Salle)

THURSDAY, SEPTEMBER 22
 Address of welcome by L. S. Werthmuller, chairman, Signal Section, A.A.R., and first vice chairman, Engineering Division, A.A.R.

Address by S. R. Negley (chairman), Electrical Section, electrical engineer, Reading

Address—Speaker to be announced

Committee reports:

1—Power Supply

3—Overhead Transmission Line and Catenary Construction

4—Wire, Low Voltage Cable and Insulating Materials

5—Electric Heating and Welding

6—Application of Motors

7—Clearances for Third Rail and Overhead Working Conductors

9—Track and Third Rail Bonds

10—Illumination

13—Application of Corrosion-Resisting Materials to Railway Electrical Construction.

The National Association of Railroad Women will hold its annual meeting at the Seignior Club, Montebello, Que., October 2-6.

The American Association of Passenger Traffic Officers will hold its 86th annual meeting October 10-12 in the Traymore hotel, Atlantic City, N. J.

The 1949 annual meeting of the Fire Protection and Insurance Section, Association of American Railroads, will be held at the Ambassador hotel, Atlantic City, N. J., on October 18, 19, and 20.

The Railway Club of Pittsburgh will hold its next meeting on September 29 at the Fort Pitt Hotel, Pittsburgh, Pa. Robert Aldag, manager of sales, engineering department, Fairbanks, Morse & Co., will deliver an address on "Motive Power in Transition."

The Women's Traffic Club of New York will hold its first meeting of the 1949-50 season in the Tower Club rooms of the Park Sheraton hotel, New York, on September 13. B. M. Seymour, president, Associated Transport, Inc., will talk on the "Transportation Association of America."

The next meeting of the Indianapolis Car Inspection Association will be held October 3 at 7 p.m. in the assembly room of the Big Four building, Indianapolis, Ind.

The fall "Rail Ramble" of the Northern Indiana Chapter, Railway & Locomotive Historical Society, will be operated on Sunday, October 23, over an all-freight route from South Bend, Ind., to Pine (via the New Jersey, Indiana & Illinois) and from Pine to Montpelier, Ohio (via the parent Wabash), with return over the same route.

The Allegheny Regional Advisory Board will hold its 61st regular meeting at Youngstown, Ohio, on September 21 and 22. Dr. George D. Heaton, pastor of the Myers Park Baptist Church of Charlotte, N. C., will talk on "The

Challenge to Modern Business Management" at a luncheon sponsored jointly by the board and the traffic bureau of the Youngstown Chamber of Commerce at the Pick-Ohio Hotel on September 22, and E. W. Coughlin, manager, railroad relations, of the Car Service Division of the Association of American Railroads, will outline the national transportation situation. C. W. Gottschalk, general chairman of the board and general traffic manager of the Jones & Laughlin Steel Corp., will preside at the general sessions. Meetings of the board's executive, car efficiency, freight claim prevention and l.c.l. and railroad contact committees will be held on September 21 at the Youngstown Country Club, with W. W. Larkin, traffic manager of the Continental Foundry & Machine Co., presiding at the executive and contact committee sessions.

The Railway Business Woman's Association of Chicago recently elected the following new officers: President, Miss Marie C. Miller, Chicago, Rock Island & Pacific; second vice-president, Mrs. Adeline Holliday, The Pullman Company; treasurer, Miss Ruth Wickes, Illinois Central; and corresponding secretary, Miss Martha Prestin, Chicago, Milwaukee, St. Paul & Pacific. Continuing in office for another year are first vice president, Miss Iona DeCamp, C.M.St.P.&P., and recording secretary, Miss Honor Eustace, C.R.I.&P.

SUPPLY TRADE

Clyde L. Hassel has been elected president and a director of the Pittsburgh Engineering & Machine Co., a subsidiary of the Pittsburgh Steel Foundry Corporation. Mr. Hassel has been vice-president in charge of sales and engineering of Pittsburgh Steel and will continue in this capacity.

Charles H. Goddard has been appointed manager of utility sales for Sylvania Electric Products, Inc. In his new assignment he will be in charge of sales of all lighting equipment to municipalities, railroads and other transportation companies, central station sales and large utility accounts.

The Woodhouse Chain Works, an associate of the Cleveland Chain & Manufacturing Co., has opened a new district sales office in Philadelphia, Pa., under the managership of Will's J. Keenan. The new office will be in the Western Savings Fund building at Broad and Chestnut streets.

Lewis-Shepard Products, Inc., has opened new headquarters at 3510 Bergenline ave., Union City, N. J.

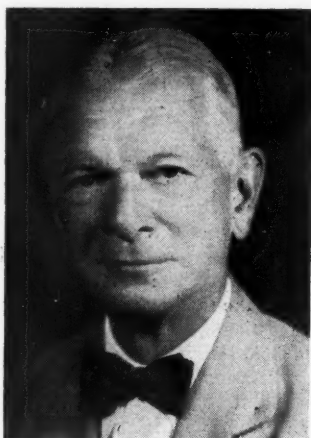
Richard H. Marshall, formerly production metallurgist of the Timken Roller

Bearing Company, has joined the metallurgical staff of the **Climax Molybdenum Company** at Chicago.

Ray Schleih has been appointed service engineer by **Allen-O'Neill Associates**. Mr. Schleih will continue to service the products of the **Hunt-Spiller Manufacturing Corporation**.

T. Max Stanger has been appointed to the sales staff of the **American Wheelabrator & Equipment Corp.**, Mishawaka, Ind., and will have his headquarters at the corporation's new sales office in Salt Lake City, Utah. Mr. Stanger, who joined American Wheelabrator nearly two years ago as a member of the service engineering staff, was formerly associated with the **American Foundry & Machine Co.** and with the **Pacific Bell Telephone Company**.

Joseph H. Parsons and **Robert B. Pogue** have been appointed vice-presidents, and **Rosser L. Wilson** has been appointed chief engineer of the brake shoe and castings



Joseph H. Parsons

division, of **American Brake Shoe Company**. Mr. Parsons, formerly assistant vice-president, will be in charge of mis-



Robert B. Pogue

cellaneous castings sales. He joined the company as an apprentice after graduation from Princeton University in

1913. Mr. Pogue, formerly chief engineer, continues in charge of engineering. He has been with the company since 1916



Rosser L. Wilson

and chief engineer of the division since 1937. Mr. Wilson, formerly assistant chief engineer, joined the firm as an engineer in 1935.

E. N. Gosselin, president of the **Graver Tank & Manufacturing Co.**, has announced the establishment of the **Graver Water Conditioning Company** as a division of Graver Tank to extend the operations which have been conducted by the Graver water conditioning and process equipment department.

Charles D. McIntire has been appointed industrial sales manager of the Cincinnati (Ohio) branch office of Brown instruments division, **Minneapolis-Honeywell Regulator Company**. He succeeds **George Brown**, who has been assigned to the promotion of products for the company's Belfield valve division at Cleveland, Ohio, with supervision over sales in the central states region. **William C. Waltman**, formerly located at the Syracuse (N. Y.) office of the Brown division, has been placed in charge of industrial sales at the division's South Bend (Ind.) office, succeeding **George E. Gilliam**. Mr. Gilliam is now in charge of pyrometer sales nationally for the Brown division at Philadelphia, Pa., as reported in *Railway Age* of August 20.

CONSTRUCTION

Atlantic Coast Line.—This road has authorized the reconstruction of a highway bridge at Lineville, Ala., at a probable cost of \$27,700.

Baltimore & Ohio.—This road has awarded contracts to **C. F. Englehart, Inc.**, Pittsburgh, Pa., for removing bridge 162/41 and reconstructing bridge

162/64 at Montgomery, Ind., and to the **George E. Detzel Company**, Cincinnati, Ohio, for masonry repairs on bridge 625 at North Dayton, Ohio. Total estimated cost of these projects is \$69,000.

Bangor & Aroostook.—This road has awarded contracts to the **Portland Company**, Portland, Me.; the **Plibrico Sales & Service Co.**, Portland; **Robinson & Kenney, Brewer, Me.**, and **C. R. Swaney**, Boston, Mass., for various portions of a project involving the construction of two boilers, two boiler settings, two oil burners and two boiler feed systems at Derby, Me. The total estimated cost of the project is \$41,059.

Bessemer & Lake Erie.—This road has awarded a contract to the **H. H. Robertson Company**, Pittsburgh, Pa., for replacing the roof on the M. & E. shop at Greenville, Pa., at an estimated cost of \$35,600. Installation of a culvert at Cranesville, Pa., at a probable cost of \$65,500, has been authorized.

New York Central.—This road has awarded a contract to the **Metzger Construction Corporation**, Buffalo, N. Y., for reconstructing bridge C-11 carrying Lake avenue, Rochester, N. Y., over the Charlotte branch.

Richmond, Fredericksburg & Potomac.—This road has awarded contracts for construction of Diesel shop facilities at its Acca, Va., engine terminal. **W. L. Ragland**, Richmond, Va., will construct a building at an estimated cost of \$85,000 and the grading will be done by **Garratt & Co.**, Richmond, for an estimated \$35,000.

EQUIPMENT AND SUPPLIES

LOCOMOTIVES

The **Long Island** has requested court authority to purchase eight 2,000-hp. Diesel-electric passenger locomotives from **Fairbanks, Morse & Co.**. In their petition the road's trustees said six of the new locomotives would cost \$1,260,000, of which \$1,239,000 would be accounted for by unexpended funds in an equipment trust, thus necessitating new expenditures of only \$21,000. The other two locomotives will be bought out of savings caused by use of the first six. Purchase of the Diesels, the petition added, would permit retirement of nine steam locomotives.

The board of directors of the **Northern Pacific** has authorized the purchase of six 6,000-hp. Diesel freight road locomotives and 12 1,000-hp. Diesel switchers, at an approximate cost of \$4,000,000.

FINANCIAL

Bangor & Aroostook.—Bond Modification Plan.—A modification plan for this road's consolidated refunding mortgage 4 per cent bonds and collateral trust 4 per cent bonds, both of which mature on July 1, 1951, has been approved by the board of directors. The directors have authorized application to the Interstate Commerce Commission under the terms of the so-called Mahaffie Act for authority to place the plan in operation. The outstanding consolidated refunding mortgage bonds amount to \$8,665,000, of which \$3,873,000 are convertible into common stock on the basis of \$60 a share and callable at 110. The balance of this issue is neither callable nor convertible. The collateral trust bonds originally totaled \$4,000,000, secured by the pledge of \$8,000,000 of consolidated refunding mortgage bonds, all held by the Reconstruction Finance Corporation, of which \$400,000 have been paid off, with a corresponding reduction in the pledged collateral.

Under the plan approved by the directors, the road proposes to redesignate the consolidated refunding mortgage bonds as first mortgage bonds, to extend the maturity to July 1, 1976, to increase the interest rate to 4½ per cent and to give all the bonds the privilege of converting into common stock at the rate of 20 shares for each \$1,000 par value of bonds. The bonds so modified will be callable at face value for sinking fund purposes and for other purposes at 104, decreasing at the rate of one-quarter of 1 per cent each year to par. The plan proposes no change in the security for the consolidated refunding mortgage bonds, which is now a direct first mortgage on all assets of the road, except for equipment obligations. The mortgage is to be closed and bonds outstanding cannot exceed those presently held by the public, pledged as collateral and held in the company treasury.

The plan proposes the payment at par of \$600,000 of the collateral trust bonds and the extension of the maturity of the balance to July 1, 1961, the interest rate and the ratio of the collateral to remain the same. These bonds will be callable for the sinking fund at par and for all other purposes at 103%, decreasing three-eighths of 1 per cent each year to maturity. The sinking fund for these bonds is calculated to retire them by their maturity. In addition to a fixed amount of \$150,000 a year there will be a cumulative contingent sinking fund of \$150,000 a year to be paid out of net income in excess of \$650,000 for the previous calendar year—or a total sinking fund of \$300,000 yearly.

The sinking fund for the re-designated first mortgage bonds provides for a payment of 25 per cent of all net income over \$800,000 as long as any of the collateral trust bonds remain outstanding. After retirement of the latter bonds this sinking fund is increased and will con-

sist of the first \$150,000 of net income each year. To this is added a contingent \$150,000 from net income over \$650,000 each year. Both amounts are contingent on earnings but cumulative. Appropriate provision is made to protect the prior claim of the sinking fund for the collateral trust bonds and to provide an average of \$500,000 a year working capital. No dividends on preferred or common stock can be paid if there are any unpaid accumulations on any sinking fund.

Curtis M. Hutchins, president of the road, in announcing the plan, said: "After two years of exploring the prospects of refunding the railroad's bonds which are due and payable in less than two years, the directors are unanimous in the conclusion that the proposed plan will best serve the interest of the bondholders. . . . In the formulation of the plan the management of the road has had the benefit of the full cooperation of the R.F.C. and we have the tentative assurance of assent of that governmental agency. Details of the plan have been discussed with the larger holders. . . . It is gratifying to note that thus far the reaction to the proposal has been entirely favorable. The operation of the railroad has been most satisfactory over the past few years and the management has been able to inaugurate new policies and economies. . . . Savings already accomplished indicate future efficient operations for the road. The company's physical property is in excellent shape and well maintained."

Chicago Great Western.—Stock and Income Debentures.—Acting upon this road's request, the Interstate Commerce Commission has dismissed the application which the road had filed for authority to issue \$7,322,080 of 4½ per cent income debentures and 73,221 shares of common stock to be offered to holders of its outstanding preferred stock in exchange for their holdings. The application was the subject-matter of the Finance Docket No. 16068 proceeding in which the commission had received from Examiner H. C. Howard two proposed reports recommending that the exchange plan be disapproved (see *Railway Age* of August 27, page 59). Counsel for the Great Western advised the commission in an August 24 letter that the road desired to withdraw the application and have the proceeding terminated. The dismissal order by Chairman Mahaffie was dated August 30 and made public on September 6.

In his letter the C.G.W. counsel—William C. Mulligan of the Chicago firm of Winston, Strawn & Black—said that while the road did not concur in "certain of the proposed conclusions" in the examiner's report, it felt that the filing of exceptions or further argument "will not result in obtaining an order granting the authority sought." Thus it desired the case ended at this time "to prevent the entry of an order based upon and incorporating such of said conclusions as we deem erroneous."

Great Western.—Notes.—This Colorado road, which is a subsidiary of the Great Western Sugar Company, has been authorized by Division 4 of the Interstate Commerce Commission to issue up to \$100,000 in unsecured promissory notes to evidence loans from the sugar company. The report stated that the application was filed after the applicant's borrowings from its parent corporation had already reached \$100,000—the "approximate limit" allowed it under the Interstate Commerce Act's section 20a(9) which exempts from the regulatory authority of the commission notes maturing not more than two years after their date and aggregating not more than 5 per cent of the par value of the securities of the issuing carrier. The new notes will also mature on or before two years from their date, and they will bear interest at 2 per cent. The proceeds will be used for working capital.

Gulf, Mobile & Ohio.—Acquisition of L.&M.R. Properties.—This road has applied to the Interstate Commerce Commission for approval of a plan whereby it would acquire the properties of its subsidiary and lessor, the Louisiana & Missouri River. "Corporate simplification, economies in administration, accounting and financing," and simplification of "relations with public authorities" are the objectives of the plan, as stated in the application which explained that the L.&M.R. corporation would be liquidated and dissolved. The G.M.&O. acquired control of the road and became the lessee in connection with its acquisition of the Alton. The lessor has outstanding 23,127 shares of common stock, 10,100 shares of preferred, and 3,290 shares of 7 per cent, guaranteed preferred. The G.M.&O. holds more than 99 per cent of this stock, i.e., all but 110 shares of the common, 43 shares of the preferred, and 109 shares of the guaranteed preferred. It proposes to deliver its stock for cancellation, to assume all L.&M.R. debts, and to pay the minority holders on the following bases: \$29.50 per share of common; \$10 per share of preferred; and \$150 of its first and refunding mortgage, 4 per cent bonds, for each share of the 7 per cent guaranteed preferred. The L.&M.R. lines extend from Louisiana, Mo., to Mexico, 52 mi., and from Mexico to Fulton, 24 mi. The acquisition plan contemplates no change in their operation or service, the application said.

New York, Chicago & St. Louis.—Bonds of the W.&L.E.—This road, which is scheduled to become lessee of the Wheeling & Lake Erie on November 17, has applied to the Interstate Commerce Commission for authority to assume liability, during the existence of the lease, for the 2¾ per cent general and refunding mortgage bonds recently issued by the Wheeling pursuant to an authorization from the commission. The bonds include \$6,870,000 of series B, the proceeds of which were applied to the payment on September 1 of a like amount of

Wheeling first consolidated mortgage, 4 per cent bonds; and \$4,000,000 of series C which were issued nominally and are now held in the Wheeling's treasury. (See *Railway Age* of August 27, page 59).

Long Island.—Would Hire Engineering Advisors.—This road has filed a petition in federal court, Brooklyn, N. Y., asking for authority to retain Coverdale & Colpitts, consulting engineers, as advisors upon engineering questions. In their petition the trustees of the Long Island—David E. Smucker and Hunter L. Delatour—said that among matters to be investigated by the engineering firm would be the contract with the New York Connecting for use of the L.I.'s Bay Ridge branch.

Prescott & Northwestern.—Bonds.—Division 4 of the Interstate Commerce Commission has authorized this road to set back for five years—from October 1, 1949, to October 1, 1954—the maturity date of \$40,000 of its 4 per cent, first-mortgage bonds. The bonds, all owned by the Missouri Pacific, are now outstanding in the amount of \$55,000; but the extension plan contemplates that \$15,000 of them will be paid on October 1. The five-year extension of the remaining \$50,000 was agreed to by the M.P. trustee, the commission's report said.

New Securities

Division 4 of the Interstate Commerce Commission has authorized:

International-Great Northern.—To assume liability for \$1,710,000 of series CC equipment trust certificates to finance in part acquisition of six Diesel-electric locomotives from the Electro-Motive Division of the General Motors Corporation, at a total estimated cost of \$2,150,624 (see *Railway Age* of August 13, page 83). The certificates, dated August 15, will mature in 15 annual installments of \$114,000 each, beginning August 15, 1950. The commission's report approved a selling price of 99.482 for the certificates with a 2½ per cent interest rate—the bid of Halsey, Stuart & Co., which will make the average annual interest cost approximately 2.47 per cent. The certificates were reoffered to the public at prices yielding from 1.3 to 2.675 per cent, according to maturity.

Missouri Pacific.—To assume liability for \$5,025,000 of series MM equipment trust certificates to finance in part the acquisition of 15 Diesel-electric locomotives and three stainless-steel passenger-train cars at a total estimated cost of \$6,284,464 (see *Railway Age* of August 13, page 83). The certificates, dated August 15, will mature in 15 annual installments of \$335,000 each, beginning August 15, 1950. The commission's report approved a selling price of 99.57 for the certificates with a 2½ per cent interest rate—the bid of Salomon Brothers & Hutzler and three associates, which will make the average annual interest cost approximately 2.45 per cent. The certificates were reoffered to the public at prices yielding from 1.35 to 2.65 per cent, according to maturity.

St. Louis, Brownsville & Mexico.—To assume liability for \$1,020,000 of series CC

equipment trust certificates to finance in part the acquisition of four Diesel-electric locomotives from the Electro-Motive Division of the General Motors Corporation at a total estimated cost of \$1,285,276 (see *Railway Age* of August 13, page 83). The certificates, dated August 15, will mature in 15 annual installments of \$68,000 each, beginning August 15, 1950. The commission's report approved a selling price of 99.643 for the certificates with a 2½ per cent interest rate—the bid of Halsey, Stuart & Co., which will make the average annual interest cost approximately 2.44 per cent. The certificates were reoffered to the public at prices yielding from 1.3 to 2.65 per cent, according to maturity.

Application has been filed with the I.C.C. by:

New York Central.—To assume liability for \$9,120,000 of equipment trust certificates to finance in part the acquisition of equipment which is expected to cost a total of \$11,673,820. The equipment was listed in the application as follows:

		Estimated unit cost
Description and builder		
4	1,000-hp. Diesel-electric switching locomotives (Fairbanks, Morse & Co.)	\$ 99,585
8	1,000-hp. Diesel-electric switching locomotives (Electro-Motive Division, General Motors Corporation)	98,100
14	1,500-hp. "A" unit Diesel-electric road freight locomotives (Electro-Motive)	168,400
6	1,500-hp. "B" unit Diesel-electric road freight locomotives (Electro-Motive)	149,980
2	2,000-hp. "A" unit Diesel-electric road freight locomotives (Fairbanks, Morse)	206,300
500	Self-clearing steel hopper cars of 55-ton capacity (Despatch Shops, Inc.)	4,080
500	Steel flat cars of 70-ton capacity (General American Transportation Corporation)	6,230
16	Electric, multiple-unit passenger coaches (St. Louis Car Company)	104,100

The certificates would be sold on the basis of competitive bids and the interest rate would be fixed by such bids. They would be dated October 1, and would mature in 15 annual installments of \$608,000 each, beginning October 1, 1950.

Dividends Declared

Bangor & Aroostook.—5% preferred, \$1.25, quarterly, payable October 1 to holders of record September 12.
Beech Creek.—50¢, quarterly, payable October 1 to holders of record September 14.
Norfolk Southern.—75¢, quarterly, payable September 15 to holders of record September 1.
Wheeling & Lake Erie.—4% prior lien, \$1, quarterly, payable November 1 to holders of record October 21; \$5 prior preferred, \$1.25, quarterly, payable October 1 to holders of record September 9.

Average Prices Stocks & Bonds

	Sept. 6	Last week	Last year
Average price of 20 representative railway stocks	37.30	37.28	50.78
Average price of 20 representative railway bonds	85.31	86.22	89.68

RAILWAY OFFICERS

EXECUTIVE

The Railway Express Agency has announced the creation of a new department to embrace both personnel and public relations activities under the direction of **Albert M. Hartung**, vice-president, with headquarters at New York.

Ernest T. Williams, vice-president and general manager of the Southern departments at St. Louis, Mo., has been appointed assistant vice-president of personnel and public relations at New York. **Alfred F. Hall**, superintendent of the vehicle division at New York, has been appointed assistant to the vice-president



Alfred F. Hall

of personnel and public relations. **E. W. Hull**, general manager, public relations and sales, has been appointed assistant vice-president in charge of sales, with headquarters as before at New York. **Oliver G. Swenson**, assistant to vice-president, traffic, has been appointed assistant vice-president in charge of traffic, with headquarters as before at New York. **J. P. Foster**, assistant to the vice-president, Western departments, at San Francisco, succeeds Mr. Williams as vice-president and general manager of the Mississippi Valley department at St. Louis.



E. W. Hull

Mr. Hall was born on Prince Edward Island, Canada, on August 12, 1894, and entered the express business at Seattle, Wash. He served in the United States Navy in World War I, then returned to Railway Express and held assignments in the accounting and operating departments in Montana, California, Utah, Colorado and Texas. He served as dis-

strict manager of public relations at Houston, Tex., before going to New York in 1943 to direct an intensive employee training program for the company's 77,000 employees. In December, 1945, Mr. Hall was appointed superintendent of the commercial division at New York and



Oliver G. Swenson

transferred to the vehicle division in July, 1947, where he remained until his recent appointment.

Mr. Hull was born at Cleveland, Ohio, where he began his express career and later served as traffic agent and district sales manager. On December 10, 1942, he was appointed assistant to the general manager of public relations at New York and in October, 1947, became general manager of public relations and sales, which position he held until his recent appointment.

Mr. Swenson began his career in the express business in San Francisco, Cal., in August, 1919. He later devoted most of his time to traffic work, principally on the West Coast, where he specialized in western rate matters. Mr. Swenson was appointed assistant traffic manager at New York on October 15, 1935, and became assistant to vice-president in charge of traffic at New York on April 1, 1947, holding that position until his recent appointment.

S. D. Hurst, Jr., assistant to president of the Atlantic Coast Line, has been appointed executive assistant to president, with headquarters as before at Wilmington, N. C.

Following approval by the Interstate Commerce Commission of the lease of the Wheeling & Lake Erie by the New York, Chicago & St. Louis (see *Railway Age* of July 30, page 64) the following changes in executive personnel at Cleveland, Ohio, have been announced by the two roads: R. F. Smith, vice-president—traffic of the W.&L.E., has been appointed assistant vice-president—traffic of both roads; G. E. Durham, general manager of the W.&L.E., has been appointed assistant vice-president—operation of both roads, and A. J. Duncan, assistant to general manager of the W.&L.E., has been appointed assistant to

the president of the Nickel Plate (N.Y.C. & St.L.) E. M. Thomas, vice-president—finance and accounting; J. H. Day, vice-president—traffic; F. S. Hales, vice-president—operation, and S. J. Witt, assistant vice-president—traffic, of the Nickel Plate, have been appointed to similar positions on the W.&L.E.

FINANCIAL, LEGAL & ACCOUNTING

Patrick C. Mullen has been appointed general attorney of the Chicago & Eastern Illinois, with headquarters at Chicago.

Medard Kerr, local treasurer of the Southern Pacific, at San Francisco, Cal., will retire on October 1 after 46 years of S. P. service. He will be succeeded by J. A. Quinn, auditor of payroll accounts at San Francisco.

Thomas E. Adamson, whose retirement as freight claim agent of the Chicago & North Western at Chicago, was reported in the *Railway Age* of September 3, was born at Geneva, Ill., on August 19, 1884. He entered the service of the North Western in December, 1905, as a stenographer, and served in clerical capacities in various departments until his appointment as assistant claim agent, freight claim department, in 1917. In 1923 he was promoted to chief clerk, freight claim department, and in 1925, was advanced to assistant freight claim agent in the same department. Mr. Adamson became freight claim agent at Chicago, in July, 1947.

L. W. Powers, assistant tax and insurance agent of the Virginian, has been appointed tax and insurance agent, with headquarters at Norfolk, Va., succeeding E. E. Arnold, who has retired in accordance with the company's pension plan, after 35 years of service.

Burton Fosler, auditor of passenger traffic of the Baltimore & Ohio, has been appointed assistant comptroller, in charge of revenue accounts, with headquarters as before at Baltimore, Md., succeeding Carroll L. Cole, who has retired from active service after more than 49 years of service in the accounting department. Francis H. Bopp, chief clerk in the office of the auditor of passenger traffic, succeeds Mr. Fosler.

Mr. Fosler started with the B.&O. as messenger in the accounting department in 1909 and advanced through various positions. In July, 1918, he became assistant chief clerk to the auditor of miscellaneous receipts and in October, 1937, was appointed chief clerk to the assistant comptroller of the revenue department. He was named auditor of passenger traffic in November, 1943.

Mr. Cole entered the service of the B. & O. as a clerk in the office of the auditor of revenue and was appointed chief clerk of that department in September, 1918. In 1920 he transferred to the office of the assistant comptroller and

in 1923 became station accountant, being appointed assistant auditor of freight traffic in 1939. Mr. Cole was advanced to auditor of freight traffic early in 1943 and became assistant comptroller on October 6, 1943.

Mr. Bopp entered the service of the B.&O. as a clerk in the accounting department in September, 1910, and subsequently held various positions in that office. In June, 1943, he was appointed head clerk and three years later he became chief clerk.

OPERATING

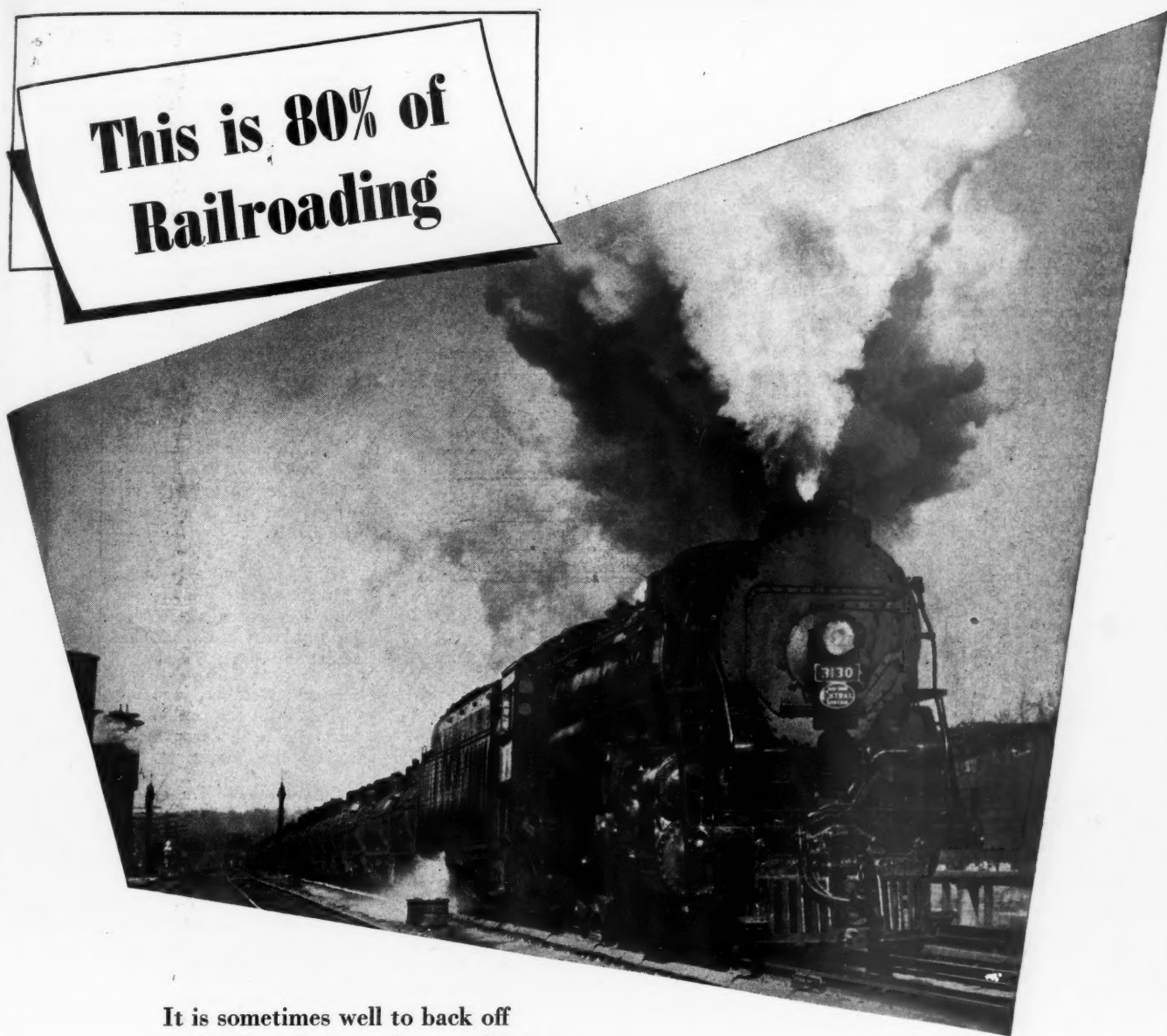
D. B. Fleming, assistant division superintendent of the Cleveland, Cincinnati, Chicago & St. Louis (New York Central) at Van Wert, Ohio, has been appointed assistant superintendent of the N.Y.C.'s Ohio Central division, with headquarters at Charleston, W. Va.

J. C. Wallace, general manager of the New York, Chicago & St. Louis, at Cleveland, Ohio, has been appointed to a similar position on the Wheeling & Lake Erie, with jurisdiction over the transportation and car service departments.

David Berman, whose promotion to superintendent of the Cedar Rapids division of the Chicago, Rock Island & Pacific, with headquarters at Cedar Rapids, Iowa, was reported in the *Railway Age* of August 27, was born on May 12, 1900, at De Witt, Iowa, where he was graduated from high school in 1917. He entered railroad service in January, 1919, with the Chicago & North Western as a switchman at Clinton, Iowa, and in July of the next year joined the Rock Island as stenographer for the division engineer at Rock Island, Ill. From 1920 to 1936, he served successively as secretary to the superintendent at El Reno, Okla., to the general superintendent at that point and at Des Moines, Iowa, and to the general manager at Des Moines and at Kansas City, Mo. He was subsequently appointed passenger trainmaster at Chicago, and in 1937 became terminal trainmaster at Peoria, Ill., being transferred to Goodland, Kan., as trainmaster in February, 1939. In June, 1939, Mr. Berman was advanced to assistant superintendent at Trenton, Mo., and later held the same position at Minneapolis, Minn., until his appointment as trainmaster at Des Moines in November, 1940. He became trainmaster at Eldon, Iowa, in September, 1945, and continued to serve in that capacity until his recent promotion.

Robert Gwinn Vawter, whose appointment as general superintendent of the Eastern General division of the Chesapeake district, of the Chesapeake & Ohio at Clifton Forge, Va., was announced in the *Railway Age* of July 9, was born on May 9, 1895, at Greenville, W. Va. He began his railway career as a rodman with the Virginian

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It is sometimes well to back off
and take a look at the overall picture.

We're thinking of the steam locomotive. These locomotives
are producing three *billion* ton-miles—and will do it again tomorrow
and the next day. They—these steam locomotives—are doing 80 per
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Many of these locomotives are old, too old, and have distorted
the statistics on performance. Many, however, are modern. And
on modern steam power—locomotives that pack 5000 to 9000
horsepower and can stay on the road for 16 and 18 hours, and then
turn around in an hour or two—the statistics look pretty good.

We build such modern power—and are convinced that it has its place.



DIVISIONS: Lima, Ohio — Lima Locomotive Works
Division; Lima Shovel and Crane Division. Hamilton,
Ohio — Hooven, Owens, Rentschler Co.; Niles Tool
Works Co. Middletown, Ohio — The United Weld-
ing Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shov-
els; Niles heavy machine tools; Hamilton diesel and
steam engines; Hamilton heavy metal stamping presses;
Hamilton-Kruse automatic can-making machinery; Spe-
cial heavy machinery; Heavy iron castings; Weldments.

in March, 1916, and six months later became an instrumentman on highway location and construction work. In October, 1917, Mr. Vawter joined the C. & O. as an assistant engineer at Huntington, W. Va., and from October, 1920, to December, 1925, served as supervisor of track at Logan, W. Va.; Louisa, Ky.; and Cane Fork, W. Va., successively. He was named yardmaster at Shelby, Ky., in December, 1925, and became assistant trainmaster at Jenkins, Ky., in May, 1926, transferring to Logan a year later. He was appointed trainmaster at Rainelle,



Robert Gwinn Vawter

W. Va., in April, 1928, and transferred to St. Albans, W. Va., in July, 1940. Two years later he became assistant superintendent at Hinton, W. Va., transferring to Logan in January, 1944. Eight months later Mr. Vawter was promoted to division superintendent at Russell, Ky., and in March, 1945, was transferred to Richmond, Va. He became assistant general superintendent of the Western General division at Huntington in January, 1947, where he remained until his recent promotion.

Walter H. Hoffman, superintendent of the office division of the Railway Express Agency, has been transferred to the vehicle division, with headquarters as before at New York, succeeding Alfred F. Hall, who has been promoted to assistant vice-president of personnel and public relations. Robert H. Peterson, chief claim agent, has been promoted to superintendent of the office division at New York.

C. R. Pedigo, assistant to general superintendent of transportation of the Missouri Pacific, at St. Louis, Mo., has been appointed special assistant to chief operating officer at that point, succeeding C. M. Hopton, who has retired after 51 years of service with the M. P.

William Stull Butler, whose appointment as superintendent of terminals of the Chesapeake & Ohio at Walbridge, Ohio, was reported in the *Railway Age* of August 6, was born on March 20, 1903, at Handley, W. Va. Mr. Butler attended Huntington, W. Va., high school and West Virginia University, receiving

his A.B. degree from the latter in 1925. He entered railroad service on November 2, 1926, as a clerk with the C.&O. at Russell, Ky., becoming switch tender on October 23, 1927; yardmaster on June 3, 1929; assistant general yardmaster on July 1, 1941, and assistant



William Stull Butler

terminal trainmaster on June 16, 1944, all at Russell. On April 1, 1945, Mr. Butler was named acting trainmaster at Cheviot, Ohio, becoming trainmaster there on January 1, 1946. He was appointed assistant superintendent of the Cincinnati division at Covington, Ky., on May 16, 1947, which position he held until his recent appointment.

Ralph Norman Begien, Jr., whose appointment as assistant general superintendent of the Western General division of the Chesapeake district of the Chesapeake & Ohio at Huntington, W. Va., was reported in the *Railway Age* of August 6, was born on May 10, 1903, at



Ralph Norman Begien, Jr.

Washington, D. C. Mr. Begien attended Gilman School, Baltimore, Md., and Princeton University, entering railroad service in 1929 as a rodman with the C. & O. at Richmond, Va. He was appointed assistant engineer at Richmond in 1926; assistant cost engineer at Richmond in the same year; assistant train-

master at Chillicothe, Ohio, in 1927; special engineer at Richmond in 1929; trainmaster at Charlottesville, Va., in 1930; assistant superintendent at Richmond in 1939 and superintendent of terminals at Chicago in 1947. Mr. Begien was appointed superintendent of the Hocking division at Columbus, Ohio, in 1948, which position he held until his recent appointment.

Clarence P. Fisher, superintendent of the Chicago Terminal division, Pennsylvania, has been elected general manager of the Chicago Union Station, to become effective on October 1.

TRAFFIC

R. H. Dozier, general agent of the Norfolk Southern at Jacksonville, Fla., has retired after 43 years of active railroad service, the last 29 of which have been with the N. S.

H. T. Minkler, general agent of the Chicago Great Western at Dubuque, Iowa, has retired after 40 years of service with that road, and has been succeeded by H. E. Goodley.

Dan V. West has been appointed general agent of the Nashville, Chattanooga & St. Louis at Savannah, Ga., succeeding the late Thomas N. Stevens.

Clyde L. Bell, livestock agent of the Missouri-Kansas-Texas Lines at San Antonio, Tex., has been promoted to general livestock agent, with headquarters at Fort Worth, Tex., succeeding the late C. O. Heller. F. O. Cook, city freight agent at Tulsa, Okla., has replaced Mr. Bell.

Eugene B. Spence, industrial agent of the Southern at Atlanta, Ga., has been promoted to general industrial agent, with headquarters at Meridian, Miss., succeeding the late J. S. Breyer.

Roy C. Nerland, general eastern passenger agent of the Atlantic Coast Line, has been appointed assistant passenger traffic manager, with headquarters as before at New York. A native of Chicago, Mr. Nerland entered railroad service with the Illinois Central in 1919 and joined the A.C.L. in 1925 as a clerk in its Chicago office. He was appointed traveling passenger agent in 1926; district passenger agent at Chicago in 1934; eastern passenger agent at New York on March 1, 1943; general eastern passenger agent at New York on October 1, 1943, and assistant general passenger agent at Wilmington, N. C., in 1944. Mr. Nerland became general eastern passenger agent at New York on September 16, 1946.

MECHANICAL

The jurisdiction of A. J. Hartman, mechanical superintendent, Southern district and Albuquerque shops, of the Atchison, Topeka & Santa Fe, with headquarters at Amarillo, Tex., has been extended to include the Northern district,

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LOCOMOTIVE THROTTLES
WITH THE
THROTTLE MASTER

and the position of mechanical superintendent, Northern district, at La Junta, Colo., has been abolished.

T. C. Short, chief mechanical officer of the New York, Chicago & St. Louis at Cleveland, Ohio, has been appointed to a similar position on the Wheeling & Lake Erie.

W. L. Huebner, supervisor Diesel engineer, system, Atchison, Topeka & Santa Fe, at Chicago, has been appointed master mechanic of the Chicago terminal division and the Illinois division at that point, succeeding **T. T. Blicke**, promoted.

W. A. Langlands, superintendent of Diesel and motor car equipment, Chicago & North Western, at Chicago, has retired, and has been succeeded by **W. P. Miller**, assistant superintendent of Diesel and motor car equipment at that point. **O. P. Jones**, electrical engineer at Chicago, has replaced Mr. Miller.

PURCHASES and STORES

Frank Rafson, division storekeeper of the Great Northern at Grand Forks, N. D., has been appointed district storekeeper at Superior, Wis., succeeding **A. J. Munn**, who has retired after 50 years of service with the G. N. W. A. **Thunstedt**, local storekeeper at Breckenridge, Minn., has replaced Mr. Rafson.

ENGINEERING & SIGNALING

E. J. Hartsell, division engineer of the Toledo-Ludington division, Pere Marquette district, Chesapeake & Ohio, at Saginaw, Mich., has been appointed office engineer at Detroit, Mich., succeeding to the duties of **V. H. Doyle**, who has been appointed valuation engineer of the system at Richmond, Va., as reported in the *Railway Age* of August 6. **J. L. Alvord**, assistant division engineer at Saginaw, has replaced Mr. Hartsell.

J. L. Fergus, division engineer of the Nashville, Chattanooga & St. Louis at Chattanooga, Tenn., has been appointed assistant chief engineer at Nashville, Tenn.

Orville W. Stephens, whose appointment as assistant to chief engineer—maintenance of the Delaware & Hudson at Albany, N. Y., was reported in the *Railway Age* of August 20, was born on May 29, 1900, at Carbondale, Pa. He attended New York Military Academy, Cornwall, N. Y., and received his civil engineering degree from the University of Michigan, Ann Arbor, Mich., in 1925. Mr. Stephens entered railroad service during school vacations, serving from 1917 to 1925 in various capacities on the Delaware & Hudson. He entered permanent service with the D. & H. in July, 1925, and served until December, 1928, with the engineering corps as draftsman, transitman, and senior transitman. Mr. Stephens was bridge and building supervisor at Carbondale and Green Island, N. Y., from

December, 1928, to June, 1938, then becoming track supervisor at Oneonta, N. Y. He was appointed assistant engineer of structures at Albany in May, 1941, which position he held until his recent appointment as assistant to chief engineer—maintenance.

SPECIAL

Ernest Henry Hallman, superintendent of the Illinois Central at Clinton, Ill., who became manager of personnel at Chicago on September 1, as reported in the *Railway Age* of August 13, was born on January 1, 1906, at Emden, Ill. He attended high school in his home town, and Illinois Wesleyan University at Bloomington, Ill. Mr. Hallman entered I. C. service in September, 1926, as a



Ernest Henry Hallman

clerk in the accounting department, subsequently being transferred to the mechanical department. He became secretary to the general superintendent at Chicago in 1929, and after serving as yardmaster at Bluford, Ill., from 1938 to 1939, was advanced to trainmaster at Clinton. In 1944 Mr. Hallman was transferred to the Iowa division, at Waterloo, Iowa, and the following year he returned to Clinton as superintendent, from which position he was promoted.

OBITUARY

Harry C. Oliver, president of the Harborside Warehouse Company of Jersey City, N. J., and former assistant vice-president—traffic of the Pennsylvania, died at his home in New York on September 5, after a brief illness. Mr. Oliver was born on September 10, 1886, at Shreve, Ohio, and had a long career in the freight traffic department of the Pennsylvania prior to receiving, on March 14 of this year, a leave of absence to head the warehouse organization, which operates one of the largest storage facilities in the New York area. Educated at public schools in Salem and Canton, Ohio, and at the Carnegie Institute of Technology, Pittsburgh, Pa., he entered railroad service in 1902 at Canton and

subsequently held various operating and traffic posts at Allegheny, Pa., and Pittsburgh; Richmond, Ind.; Toledo, Ohio, and elsewhere on the Pennsylvania system. During World War I he served in the United States Army from September 10, 1917, until June 1, 1919, spend-



Harry C. Oliver

ing 16 months in France with the American Expeditionary Forces and reaching the rank of major of infantry. Prior to going to New York in 1943 as assistant vice-president—traffic, Mr. Oliver had been freight traffic manager for the Pennsylvania at Pittsburgh.

C. O. Heller, general livestock agent of the Missouri-Kansas-Texas Lines, with headquarters at Fort Worth, Tex., died recently.

John Love Wilkes, president and general manager of the Jacksonville Terminal at Jacksonville, Fla., since 1921 died in a hospital in that city on August 23, after a long illness due to a heart ailment. He was 68 years old. Mr. Wilkes entered railroad service with the Louisville & Nashville at Culleoka, Tenn., and later worked on the Illinois Central at Princeton, Ky., the Nashville, Chattanooga & St. Louis at Atlanta, Ga., and the Washington Terminal at Washington, D. C.

Running counter to the moves for increased production from the plant have been the moves aimed at creating more jobs from the same amount of work. Few things are more destructive to the best interests of the average employee, or to the public, than requiring that more people be hired to do a given job than are actually needed. Look at any of the older countries that have gone into decline and you will find a system of dividing up the work so that there are lots of jobs for lots of people but practically no one has a decent living. When this sort of system gets set as a caste system, then progress ceases and improvement of conditions for the people is impossible. —**A. T. Mercier**, president, *Southern Pacific*



did you hear the one about the

Two Traveling Men?

Once there were two traveling men, who boarded separate trains for an overnight journey. One got off next morning full of pep and bounce, ready for a big day's work. "Slept like a top," he reported. "Smoothest ride I ever had."

The other emerged heavy-eyed and pessimistic. "What a ride!" he said. "Almost got jolted out of my berth. Hardly slept a wink." And the point of the story is—which one was *your* passenger? . . . and which one will *stay* your passenger?

.

If you are now planning on any new trains for de luxe service, you are probably giving the question of passenger comfort a lot of thought. Brakes can't, of course, provide the complete answer—but on a number of roads Westinghouse HSC Electro-pneumatic brake equipment has been a big help in smoothing the ride, and improving and maintaining schedules. Application and release impulses are transmitted simultaneously to every car on the train . . . the Speed Governor Control automatically proportions brake pressure to speeds . . . the Decelostat instantaneously softens braking effort if wheel slip impends.



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GENERAL NEWS

(Continued from page 76)

B.R.T. Calls Strike on W.&L.E.

Thomas E. Bickers, secretary of the National Mediation Board, advised the Wheeling & Lake Erie early this week that the Brotherhood of Railroad Trainmen had called a strike against that company for 4 p.m., Friday, September 9. The strike call resulted from inability of the railroad and the union to agree on the disposition of 34 cases involving time claims, protests and requests for rules changes.

It was stated at the National Mediation Board on September 7 that the board's offer of its mediatory services had been accepted by the parties; and that the union had postponed the strike, pending the outcome of the board's efforts.

Second-Quarter Truck Traffic Up 1.9 Per Cent

The volume of freight hauled by intercity Class I motor carriers increased 1.9 per cent in this year's second quarter, as compared with the same period last year, according to American Trucking Associations. The A.T.A. statement, however, referred to "continued signs of a leveling off in truck tonnage," and explained that the second-quarter showing "stemmed directly from a stepped-up movement of special commodities, particularly automobiles."

The statement went on to point out that the tonnage hauled by carriers of general freight declined 1.7 per cent under the second quarter of 1948. The comparisons were based on an analysis made by A.T.A.'s Research Department of reports of 1,345 Class I truckers. These truckers hauled 30,458,582 tons of intercity freight in this year's second quarter, as compared with 29,884,398 tons in the like 1948 period. Five of the nine geographical regions showed over-all decreases in tonnage, with the drops ranging from 0.5 per cent in the Middle Atlantic region to 11 per cent in New England. Increases in the remaining four regions ranged from 5.1 per cent in Central territory to 19.7 per cent in the Rocky Mountain region.

Monon Tells Why It Drops Louisville Night Trains

The Chicago, Indianapolis & Louisville will withdraw its passenger trains Nos. 3 and 4, operating overnight between Chicago and Louisville, Ky., together with the Orleans (Ind.)-French Lick connection, and all sleeping car service, effective on September 24.

In an announcement to the public, J. W. Barriger, president of the road said that these trains had been reinstated, shortly after the reorganized corporation began operation of the Monon in May, 1946, on faster schedules and with better equipment than had been used theretofore, "with the hope that the service



GATX

GEOGRAPHY

You see GATX tank cars everywhere—207 specialized kinds—carrying petroleum products, fish oils, molasses, lard, sulphuric acid, wines, tung oil and innumerable other bulk liquids to and from every state in the

Union. Yet none of the more than 40,000 tank cars in the GATX fleet is ever more than a few hours

away from one of General American's completely equipped maintenance shops. Thus General American—builder, operator, lessor of tank cars—keeps the nation's bulk liquids rolling swiftly, safely and economically to their destinations.



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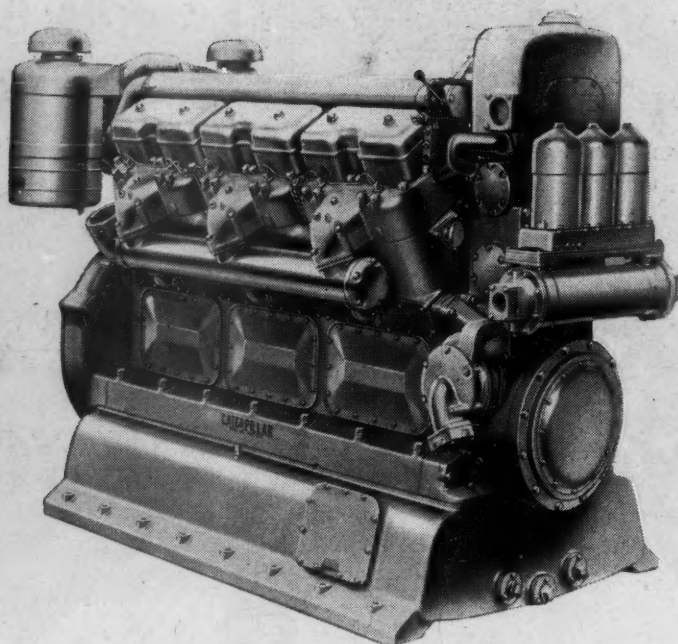
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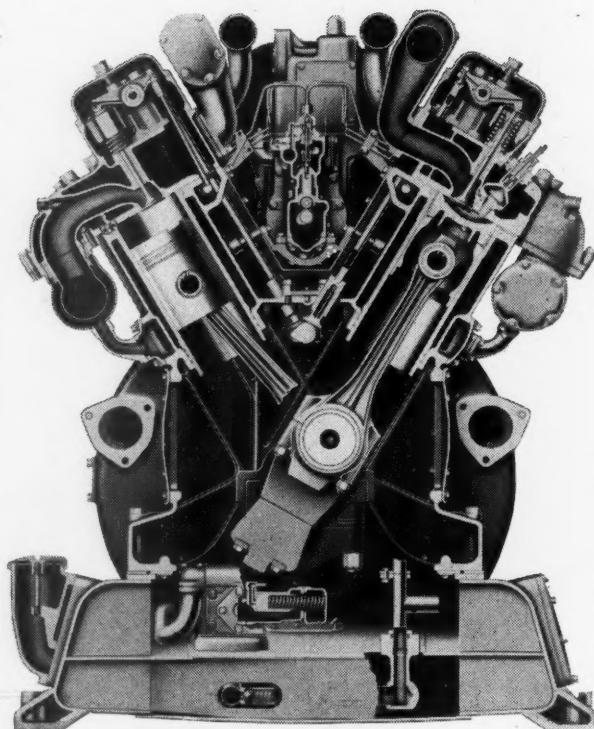


With the addition of four great new models, "Caterpillar" Diesels are now being built in units up to 500 horsepower.

Thus, these familiar railroad Diesels become available for use in an extended range of locomotives and rail cars — bringing with them the outstanding economy, dependability, long life and easy servicing so thoroughly proved in other models.

These new Diesels are coming out of the world's most modern engine factory — where precision manufacture and inspection controls are used to build the finest product of its kind. The designs are a natural development of current models of the same bore and stroke, checked by many years of careful research.

In the field, owners of "Cat" Railroad Diesels have the advantage of *complete parts and service facilities*. ALWAYS WITHIN RANGE are 285 dealers' parts stores and eight factory-maintained parts depots. It is unnecessary for a railroad to tie up its own funds in "Cat" Engine parts stocks. For engine specifications write to the Railroad Power Div., CATERPILLAR TRACTOR CO., PEORIA, ILL.



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long life — and EASY SERVICING*

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RAILROAD DIESELS

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MOTOR GRADERS

EARTHMOVING EQUIPMENT

RAILWAY AGE

would prove sufficiently useful and attractive to the people living in Monon communities to make the trains self-supporting." "For some time," Mr. Barriger's explanation reads, "the public's response, while not adequate in terms of revenue to meet the operating costs, was encouraging because a steady improvement in passenger traffic and revenues was registered. The trend reversed itself last October and has been downward since then. Meanwhile, costs have been rising and the five-day week . . . will add further to them. The current direct out-of-pocket loss incurred in running the Monon's passenger trains is approximately \$85,000 per month."

Operation of the "Thoroughbred," streamlined Chicago-Louisville day train, and the "Hoosier" and "Tippecanoe" between Chicago and Indianapolis, Ind., will be continued with slight changes in schedule.

Program for Minnesota Rail Course Announced

The second Rail Transportation Institute, which the University of Minnesota, Minneapolis, Minn., is sponsoring in co-operation with the Association of American Railroads, from September 26 to October 8, inclusive, as announced in *Railway Age* for July 23, page 51, will include lectures by a large number of railroad officers and shipper representatives, as follows:

SEPTEMBER 26

Railway Organization—The Modern Corporation and Its Foundations—G. Murray Campbell, vice-president, Baltimore & Ohio

Line Operations—Over-all View—John M. Budd, vice-president, operating, Great Northern

SEPTEMBER 27

Transportation—Supervision and Co-ordination within the Railroad System and with Other Systems—Robert E. Mattson, general superintendent of transportation, Northern Pacific

Car Service Division Activities of the A.A.R.—E. W. Coughlin, Car Service Division, A.A.R.

SEPTEMBER 28

Loss and Damage Prevention—Lewis Pilcher, executive vice-chairman, Freight Claim Division, A.A.R.

Modern Methods of Materials Handling in Stations and Stores—C. R. Opsahl, supervisor of station service, Northern Pacific

SEPTEMBER 29

Selling Freight and Passenger Service—William T. Burns, vice-president, traffic, Union Pacific

Traffic Training Activities—William R. Cox, freight traffic manager, Western Region, Pennsylvania

Journalism in the Transportation Field—Robert J. Bayer, editor, *Traffic World*

Traffic Management from the Viewpoint of the User of the Service—E. G. Plowman, vice-president, traffic, United States Steel Corporation

Practice and Procedure before the Interstate Commerce Commission—Earl B. Smith, vice-president and director of traffic, General Mills, Inc.

SEPTEMBER 30

Railway Legal Department—Organization and Functions—J. C. Gibson, vice-president and general counsel, Atchison, Topeka & Santa Fe

Railway Financial Problems—L. J. Kiernan, manager, special services, Public Relations Department, A.A.R.

Railway Safety Activities—Charles M. Kimball, assistant to vice-president, Southern

OCTOBER 3

Visual Education and Employees' Suggestion Systems—Harvey C. Marmaduke, representative executive department, Illinois Central

Settling Railway Labor Disputes—Daniel P. Loomis, chairman, Association of Western Railways

Personnel Problems—L. W. Horning, vice-president, personnel and public relations, New York Central

OCTOBER 4

Current Problems in Maintenance of Way—H. R. Clarke, chief engineer, Chicago, Burlington & Quincy

Current Problems in Maintenance of Equipment—John E. Goodwin, vice-president and executive assistant to president, Chicago & North Western

New Technical Developments—Motive Power—C.

Super-Clean Air all the way— between Chicago and the Coast



**New California Zephyr
features AAF Electro-Airmat
Electronic Precipitators**

DUST, dirt, lint and tobacco smoke can't ride the California Zephyr. Every car in this de luxe, streamlined train features Electro-Airmat filters as a part of its air-conditioning system.

Electro-Airmat is fast becoming a standard specification among those railroads who demand super-clean air at a saving. Here's why—

- Cleaning efficiency more than 10 times greater than the average of standard mechanical filters.
- Average cleaning efficiency 90% in cases of atmospheric dust and tobacco smoke—Bureau of Standards Discoloration Test Method.
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- Less weight—space required in direction of airflow is $\frac{1}{3}$ less than ordinary plate-type unit.

AAF Electro-Airmat offers a choice of designs for side, bottom or front removal of the ionizer, collector element and odor filter. Bulletin 254 contains complete information on product and method of installation. Write for it now.

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**FORK LIFT TRUCKS
and TRACTORS**

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

R. Osborn, vice-president, General Motors Corporation and general manager, Electro-Motive Division New Technical Developments—Signaling and Communications—Frank L. Steinbright, superintendent of telegraph, Northern Pacific

OCTOBER 5

New Technical Developments—Freight and Passenger Equipment—Frank L. Murphy, chief engineer, Pullman-Standard Car Manufacturing Company

The course will be under the direction of Edmund A. Nightengale, associate professor of economics and transportation.

A total of 20 hours will be devoted to field studies, which will include observation of materials handling at warehouses and terminals in the Twin Cities area; a trip to the accounting department of the Great Northern to see machine installations; an all-day inspection of railroad facilities in the Duluth-Superior area, and an all-day field trip to the Mesabi Range.

**Employee and Survivor Benefits
Reach New Peaks in Fiscal Year**

Payments under each of the four broad types of benefits—retirement, survivor, unemployment and sickness—in the 1948-49 fiscal year surpassed those of any preceding year, the Railroad Retirement Board states in its latest "Monthly Review." In excess of 850,000 men, women and children drew \$360,000,000 in benefits, and the number of beneficiaries in each of the aforementioned groups was larger than in any other year.

The board said that approximately 2,300,000 persons worked for the railroads at some time or other during the calendar year 1948 and built up credits toward retirement and survivor benefits. About 2,000,000 workers earned enough to qualify for unemployment and sickness benefits in the year which began July 1, 1949. The number who had acquired credits under the board's benefit programs since 1937 grew to 8,300,000 by the end of 1948.

The 20 per cent increase in virtually all retirement benefits, brought about by the 1948 amendments to the Railroad Retirement Act, accounted for a sharp increase in retirement payments in 1948-49. A total of \$233,797,000 was paid to 254,000 retired employees during the year, as compared with \$187,750,000 to 237,000 employees in 1947-48.

Although the 36,700 retirement annuity applications filed during the fiscal year was 12 per cent higher than in 1947, awards were 17 per cent lower, reflecting the return to a more normal workload after the unusually high level of operations following the passage of the 1946 amendments, according to the Retirement Board. The number of age annuities awarded remained about the same, but those based on disability dropped from 51 per cent of all retirement awards to 40 per cent.

The average annuity awarded in 1948-49 was \$78.64 a month compared with \$63.73 a year earlier. The higher amount, said the board, resulted from the 20 per cent increase in benefits, higher average monthly compensation and higher average years of service.

Monthly survivor benefit awards fell

off in 1948-49 by 60 per cent from the peak reached in the preceding year. Awards of lump-sum death benefits, however, rose almost 65 per cent, mainly because of restoration of the residual payment which had been eliminated by the 1946 amendment. A total of 31,400 monthly benefits and 34,500 lump sums were awarded.

During the fiscal year ended June 30, a record total of \$46,745,000 was paid to 286,000 employees in unemployment benefits, and the 1,706,000 unemployment claims filed were 27 per cent greater than in 1947-48. Some 179,000 employees were paid \$29,823,000 in sickness benefits, compared with \$26,604,000 to 150,000 workers in the previous year.

"Starlight" New Southern Pacific Overnight Coach Train

On October 2 the Southern Pacific will inaugurate the "Starlight," a streamlined, all-coach overnight train between San Francisco, Cal., and Los Angeles. At the same time, the "Noon Daylight" will be temporarily withdrawn, and the "Coaster," overnight sleeping car and coach train, will be discontinued. The "Morning Daylight" and the "San Joaquin Daylight" will not be affected.

On the Shasta Route the "West Coast" between Sacramento and Portland will be temporarily discontinued, as the new "Shasta Daylight" and the "Cascade" are expected to prove adequate for the winter passenger travel.

The "Starlight" will leave its respective terminals at 8:15 p.m., making the San Francisco-Los Angeles run in 10 hr. 30 min.

Packaging-Materials Handling Show at Detroit

More than 80 manufacturers of materials handling and packaging equipment and components have announced their intention to exhibit at the Fourth Annual Packaging and Materials Handling Exposition, to be sponsored this year, jointly, by the Society of Industrial Packaging and Materials Handling Engineers and Wayne University, and held at Detroit, Mich., October 3-7. Wayne University will conduct the "Institute" activities of this meeting, which will include 16 specialized discussion and lecture sessions and panels.

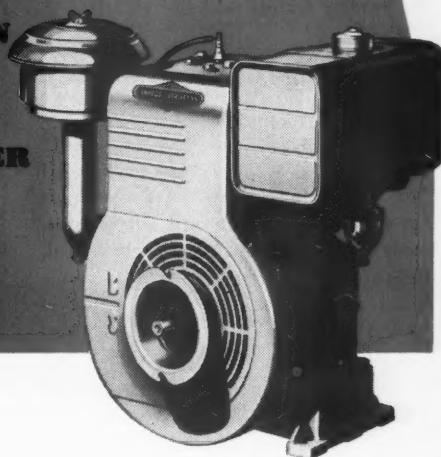
A number of the sessions offer material of interest to railroad personnel, including one on October 4, to be conducted by A. R. Schroeder, special representative, freight loss and damage prevention bureau, New York Central, on the fundamentals of carloading. Top executives from industry, led by R. J. Bayer, editor, Traffic World, will discuss packaging, material handling and distribution operations and their relationship to production costs. Prepackaging, one of the latest developments in the packaging field, also will come in for considerable attention, as will export packaging and new developments in packaging materials, methods and warehousing.

A "best package" contest will be part of the show, with special attention being

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CONTINUOUS ENGINEERING AND PRECISION PRODUCTION**

**OF 4-CYCLE
SINGLE-CYLINDER
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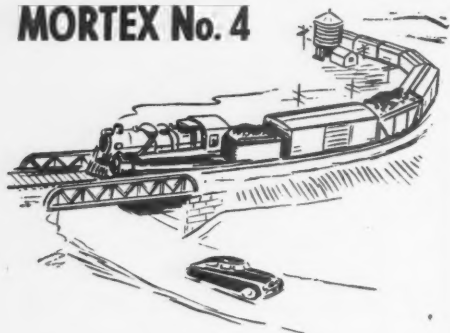
The experience gained in building more than 4 million air-cooled 4-cycle gasoline engines—during 30 years of uninterrupted production—plus the knowledge acquired in putting air-cooled power to work on all types of equipment, machinery and appliances—for civilian and military uses—in industry, construction, by railroads and on farms—all this broad technical background has kept Briggs & Stratton always *first* in modern design and advanced features.

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One application of this tested coating is far superior to paints and cut-back asphalt products. It's the most practical, low-cost rust preventative for roofs, interiors and underframes of steel freight and refrigerator cars, covered hopper cars used for soda ash, lime and similar products, ice bunkers and equipment exposed to acid fumes and gases.

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Most railroads get Mortex No. 4 in 55 gallon drums, but you can order either a 1-gallon or a 5-gallon can and put it through your own comparative tests.

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paid to the efficacy of the packages as a means of preventing damage. A. L. Green, senior special representative, Freight Claim Division, Association of American Railroads, will again be chairman of the committee of judges for this contest.

I.C.C. Gets Express Agency's Ideas on Credit Regulations

The Railway Express Agency has filed with the Interstate Commerce Commission a petition setting forth what the agency thinks would be "reasonable" rules for the commission to prescribe for the extension of credit to express shippers. As noted in the *Railway Age* of August 6, page 60, the commission obtained regulatory authority over the extension of credit by express companies in recently-enacted legislation which is embodied in Public Law No. 197 of the present Congress.

The legislation becomes effective on February 2, 1950 (six months after its enactment date); and R.E.A. would make its proposed credit rules effective as of that date. Five such rules were proposed in the R.E.A. petition. They would provide for the rendition of bills weekly, each billing to cover transactions of the preceding week. A period of four working days following the end of the billing week would be allowed for preparation and presentation of bills, and the bills would be payable within

seven days (excluding Saturdays, Sundays and legal holidays) after presentation. The time of mailing would be considered the time of presentation of the bills.

The petition explained that the difference between the suggested rules and the rules heretofore prescribed by the commission for other types of carriers was in the time allowed, after the close of the billing period, for the preparation and presentation of bills. The rules presently applicable to truckers call for presentation of the bill within seven days after delivery of the shipment involved and collection of charges within seven days after such presentation. In asking for different arrangements, R.E.A. recalled that the commission, in previous credit-rules cases, has made pronouncements to the effect that such rules "should be predicated upon conditions prevailing in the particular class of service involved." Rules like those applying to truckers, the petition added, could be complied with by R.E.A. only by adopting a practice of semi-weekly billing, "in effect a doubling of the work required under the present weekly plan and under the system of billing proposed in the suggested rules."

The additional cost of semi-weekly billing was put at approximately \$42,000 a month. That would be the out-of-pocket outlay, while the estimated investment in additional equipment, such as typewriters and calculating machines,



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was put at \$27,000. The petition also said:

"In addition to an increase in the express companies' cost of approximately a half million dollars a year that would result from a practice of semi-weekly billing of credit accounts, there would also necessarily follow an increase in the work and expenses of express patrons in handling double the number of transactions involved under the present weekly billing system and under the plan proposed in the suggested rules.

"Because of the large volume of small transactions that is characteristic of express service as distinguished from other classes of service where the unit is in carloads or truckloads, or tons, or even as to l.c.l. or l.t.l. where the average weight per shipment is many times that of express l.c.l. shipments which average about 50 lb., the accounting and clerical work involved in the preparation of bills is exceedingly heavy. Under the conditions obtaining in the express service a time of less than four working days after the close of the billing period for the preparation and presentation of bills would be wholly inadequate and could only be met at a greatly increased expense which would be of benefit to no one."

Offices and Stations And the 40-Hour Week

Summaries of the plans of representative railroads for coping with the 40-hr. week in those services with which the public most frequently comes into contact were published in a story beginning on page 58 of last week's *Railway Age*. Since that issue went to press, responses to the survey conducted by this magazine have been received from the Gulf, Mobile & Ohio, the Seaboard Air Line, the Southern Pacific and the Union Pacific.

The general policy of the G. M. & O. will be to close freighthouses on Saturdays and Sundays. This also will be true of passenger stations and ticket offices, except for those in larger cities. General and traffic solicitation offices will be placed on a skeleton basis. An estimated 50 additional clerical, station and freight-house employees will be required. All plans, the road added, are tentative, until a backlog of actual experience under the new work week has been acquired.

It will be the general policy of the Seaboard to close freighthouses on the week-ends. Where necessary, a limited force will be kept on duty to bill out or deliver carload freight. During the shipping season in the road's perishable originating territories, agency services will be provided on Saturdays to the extent necessary to protect the movement of such freight. All important depot ticket offices will be kept open Saturdays and Sundays, although city ticket offices will be closed. Passenger traffic offices will be closed to the public but arrangements have been made to handle urgent and emergency matters. Freight traffic department offices at headquarters and the outside commercial offices will be open on Saturdays with a skeleton force operating on a staggered basis.

The S.P. will close freighthouses, passenger stations and ticket offices on Saturdays and Sundays. Important exceptions include ticket offices in passenger terminals. General and traffic solicitation offices will be closed, although, temporarily at least, a person will be on duty in the principal on-line passenger offices to handle emergency matters. It is estimated that the 40-hr. week will necessitate the employment of 360 more clerical, station and freight-house employees in the operating department alone. An estimate of possible additional employees in the traffic department could not be made at this time.

The U.P. said its freighthouses fall into six different categories and that each would be operated according to its needs. Freighthouses in larger cities will be manned by a skeleton force on week-ends to handle the work on team tracks, diversions, interchange of through waybills and emergency carload billing. In medium-sized towns a small force will be on duty to handle carload freight and perishable carload traffic. An agent will be on duty at "one-man" station perishable points. Other "one-man" stations will be closed, although an agent will report on a call basis to handle livestock. Less-than-carload transfer stations will work only five days, Monday through Friday. City ticket offices will be closed on Saturdays and Sundays. Depot ticket offices will be open at principal terminals. Traf-

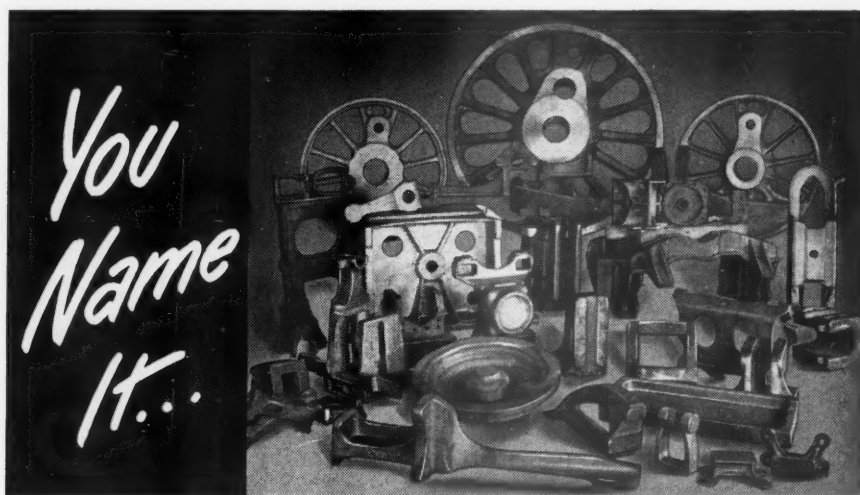
fic solicitation offices will be closed and only essential service will be undertaken in the general office with a skeleton organization. An estimated 663 additional clerical, station and freight-house employees will be hired.

Third Canadian Trade Fair to Open at Toronto May 29, 1950

The third annual Canadian International Trade Fair will be held at the exhibition grounds in Toronto, Ont., from May 29 to June 9, 1950. Advance reservations total 19,000 sq. ft. of space for repeat exhibitors from the 1948 or 1949 fairs from Canada, the United States, the United Kingdom and Belgium, plus 35,000 sq. ft. for a group of seven British engineering trade associations.

Central of Georgia Extends Low Round-Trip Coach Fares

The Central of Georgia has extended its five-day limit round-trip coach fares to Alabama, effective September 10. The fares, in effect in Georgia since 1947, will apply between C. of Ga. stations in Alabama and between most of the road's stations in that state and Columbus, Ga. The new fares constitute a reduction of nearly 50 per cent. During the short time they have been in effect in Georgia, the road said, the fares have proved "phenomenally successful."



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Current Publications

BOOKS

Railroads of America, compiled by Frank P. Donovan, Jr. 244 pages. Published by Kalmbach Publishing Company, Milwaukee 3, Wis. \$3.

Frank Donovan, who gave students of railroads their first complete bibliography of references to railroads in literature and later helped turn out, for a much larger audience, a "treasury" of good railroad yarns, now turns his compiling skill to non-fiction, "fact" articles appearing in "Trains," the monthly illustrated magazine for railroad devotees. Within the covers of this excellently printed volume there ap-

pears a collection of 14 of the best pieces carried in that magazine in recent years, including two by the compiler himself and one by the founder of "Trains." Each of the separate contributions has an individual flavor and insight and all of them embody the highest standards of style and accuracy. Even people not especially interested in railroads will find the book hard to lay down and may, perchance, be bitten by the bug for good.

The following 14 railroads are covered: Pennsylvania; Chesapeake & Ohio; Reading; Pacific Great Eastern; Southern Pacific; Delaware & Hudson; Southern; Minneapolis & St. Louis; New York, Susquehanna & Western; Northern Pacific; Duluth, Missabe & Iron Range; Maryland & Pennsylvania; Pacific Electric, and Western Maryland.

The book contains no illustrations, but has several good maps.

Locomotive Practice and Performance in the Twentieth Century, by Cecil J. Allen. 302 pages, illustrations, drawings, profiles. Published by W. Heffer & Sons, Ltd., Cambridge, England. 21 shillings.

Mr. Allen first reviews locomotive developments from 1900 through 1947. Next, he discusses design, building and service of locomotives. These chapters are followed by others covering the performance of locomotives on each of the four former main-line British railways, and in France, Germany, the United States and Canada; electric traction, and Diesel-electric traction. The schedules of many famous fast runs are included. There is also a chapter on train timing, and an appendix showing gradient profiles of British main-line railroads.

PAMPHLETS

Tabulation of Statistics Pertaining to Signals, Interlocking, Automatic Train Control, Telegraph and Telephone for Transmission of Train Orders, Spring Switches, and Train Communication Systems as Used on the Railroads of the United States, January 1, 1949. 44 pages. Compiled by the Bureau of Safety, Interstate Commerce Commission, Washington 25, D. C.

Statistics for individual railroads on the above-mentioned subjects are tabulated herein. For the first time statistics on train communication installations are included. Road installations are shown in one table; yard and terminal installations in another.

International Railway Statistics, Year 1947. 160 pages. Published by the General Secretariat of the International Union of Railways, 10, Rue de Prony, Paris 17e, France. Price, in English or French, 2100 French francs.

Contains statistics on mileage, equipment, operations, finance, employees, taxes, accidents, etc., for 36 countries for the year 1947. Instructions for compiling the statistics are included as well as appendices which give additional information.

TRADE PUBLICATION

Track at Its Level Best — For Less Money. 24 pages, illustrations. Published by the Power Ballaster Division, Pullman-Standard Car Manufacturing Company, 79 E. Adams st., Chicago 3.

"Use machine power to save man power" is the theme of this attractive booklet, the machines being the Pullman-Standard Power Ballaster for tamping, the Power Track Cribber for skeletonizing, and the Ballast Cleaner for renovating ballast, each unit being completely described and illustrated. The booklet points out that while each of these machines serves a separate function and can be efficiently used individually, the three are designed as companion units and can be operated together as a complete ballasting team. To show how machine power saves man power, the booklet presents a number of actual case histories. One of these, for example, indicates that the use of a Power Track Cribber, as compared with hand cribbing, will save over \$1,300 per mile. Another shows that the use of the Power Ballaster will reduce tamping costs by up to \$600 per mile.

Railway Age—September 10, 1949



Ask a Railroad Man WHY HE LIKES STAR LANTERNS

NEW IMPROVED STAR ELECTRIC TRAINMAN'S LANTERN

Improved version of Star Model 202, most popular twin-bulb Trainman's Lantern in use today.



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REFLECTOR:

Two-purpose, chrome plated. One for general signalling. One for spotting.

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Simple. Trouble-free. Positive action.

NEW Positive-locking handle. No wingnuts to lose!

CONSTRUCTION:

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THE man along the tracks in the night, engaged in the endless task of moving the mighty freights and passenger trains, becomes attached to his railroad lantern.

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STAR LANTERNS are built this way . . . have been for sixty years. Railroad men know it!

★ Time to check lantern stores, for longer nights are on the way! Write today for Star folder B-2. ★

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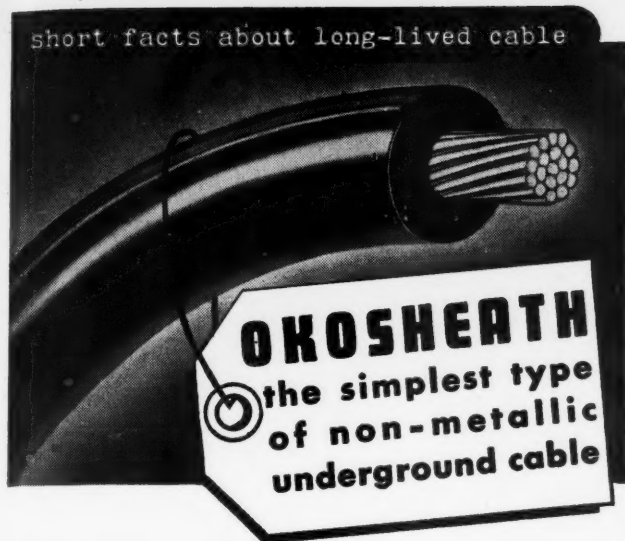
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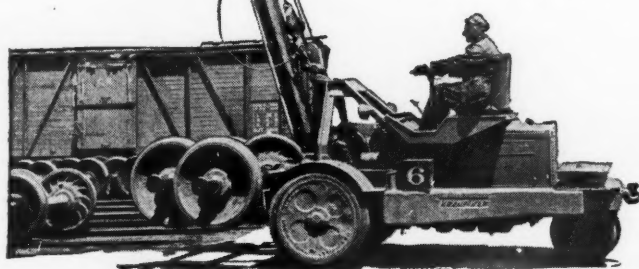
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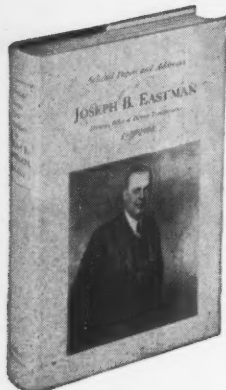
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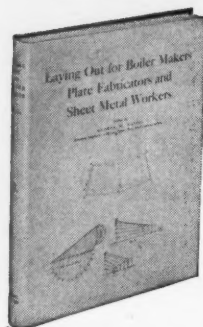
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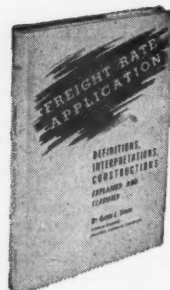
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